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DIETARY AND MEDICAL MANAGEMENT OF DISEASES OF THE GALLBLADDER

NEWER POINTS OF VIEW

JOHN RUSSELL TWISS, M.D.
AND
CARL H. GREENE, M.D.
NEW YORK

Progress in any field of medicine is not a uniform process. The introduction of new points of view for the study of the disease process, the developments of new technical methods of examination, or advances in any of the medical sciences may lead to renewed interest, intensive study and rapid progress, at least for a time. The last decade has seen such an interest in the anatomy, physiology, chemistry and pathology of the liver and biliary tract.[1]

It is desirable at the present time, therefore, critically to review this literature and to point out the application of these newer points of view in improving the therapeutic management of the patient with disease of the liver or biliary tract.

Mann [2] has reported, in summarizing both the literature and his own studies, that he has come to consider the gallbladder as a part of a mechanism whereby the secretory activity of the liver is correlated with that of the gastro-intestinal tract. In the fasting state preceding a meal, the liver is active but the amount of bile secreted is relatively small. The gallbladder is partially filled with concentrated bile, of which the bile salts are a most important constituent. The sphincter at the end of the common duct allows amounts of bile to escape into the duodenum only at infrequent intervals and most of the bile secreted by the liver passes into the gallbladder. As soon as the ingested food passes the pylorus the chyme causes the sphincter to relax and, coordinately with this, the gallbladder expels a portion of its contents. The bile salts are quickly absorbed from the intestine and stimulate the liver to increased activity. With the increased secretion of bile there is an increased flow of bile to and from the gallbladder. With the stomach empty and chyme no longer pouring over the papilla, the sphincter opens less frequently, and gradually the secretory activity of the liver is reduced to that of the fasting state. It therefore appears that the function of the gallbladder is to provide a reserve of concentrated bile which is of value both in digestion and as a means of stimulating the liver to increased activity at the time the gastro-intestinal tract is most active.

The data on which this hypothesis is based are varied and, in many particulars, still a subject for controversy. The ability of the gallbladder to concentrate the bile from several to ten fold, suggested by the work of Kemp,[5] Hammarsten [6] and Hohlweg,[7] was conclusively proved by Rous and McMaster [8] and by Mann and Bollman.[9] Whether substances other than water and inorganic salts are absorbed, however, is still under debate. Examination of the gallbladder of a dog several days after the ligation of the common bile duct shows the surface lymphatics to be distended with bile-stained fluid, while two or three months later the contents of the gallbladder are reduced to a small amount of inspissated mucus that may fail entirely to give the chemical tests for unchanged bilirubin or bile acids. Mann [4] has reported experiments indicating absorption of bile salts from the gallbladder, and Andrews and his associates [10] think that such absorption and the consequent ratio of bile salts to cholesterol is an important factor in the deposition of cholesterol crystals from the bile. There would seem, on the one hand, to be some evidence for assuming that the gallbladder is able to absorb bile salts from the contained bile. On the other hand, the fact that the gallbladder bile normally contains several times as much bile salts as hepatic bile suggests that such absorption usually is small in extent, at least when compared to the accompanying absorption of water.

The deposition of lipids or, more particularly, cholesterol in the mucous membrane of the gallbladder noted by Naunyn [11] has been termed the "strawberry gallbladder" by MacCarty [12] and, more recently, "choles-

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From the Departments of Medicine and Surgery of the New York Post-Graduate Hospital.

Owing to lack of space, this article has been abbreviated in THE JOURNAL. The complete article appears in the author's reprints.

Read before the Section on Pharmacology and Therapeutics at the Eighty-Fourth Annual Session of the American Medical Association, Milwaukee, June 14, 1933.

1. Alvarez, W. C.: Mechanics of the Digestive Tract, New York, Paul B. Hoeber, Inc., 1928. Graham, E. A., and Cole, W. H.: Roentgenologic Examination of the Gallbladder, J. A. M. A. **82**: 613-614 (Feb. 23) 1924; Diseases of the Gallbladder and Bile Ducts, Philadelphia, Lea & Febiger, 1928.

2. Mann, F. C.: A. Physiologic Consideration of the Gallbladder, J. A. M. A. **83**: 829-832 (Sept. 13) 1924; the Function of the Gallbladder, Physiol. Rev. **4**: 251-273 (April) 1924.

5. Kemp, G.: Experimental Researches on the Function of the Mucous Membrane of the Gallbladder, Principally with Reference to the Conversion of Hepatic into Cystic Bile, Proc. Roy. Soc. Med. **8**: 133-140, 1856-1857.

6. Hammarsten, O.: Zur Chemie der Galle, Ergebnisse der Physiologie **4**: 1-22, 1905.

7. Hohlweg, H.: Ueber Störungen der Salzsäureabscheidung des Magens bei Erkrankungen und nach Extirpation der Gallenblase, Deutsches Arch. f. klin. Med. **108**: 255-276, 1912.

8. Rous, Peyton, and McMaster, P. D.: The Concentrating Activity of the Gallbladder, J. Exper. Med. **34**: 47-73 (July) 1921; Physiological Causes for the Varied Character of the Stasis Bile, ibid. **34**: 75 (July) 1921.

9. Mann, F. C., and Bollman, J. L.: The Relation of the Gallbladder to the Development of Jaundice Following Obstruction of the Common Bile Duct, J. Lab. & Clin. Med. **10**: 540-543 (April) 1925.

10. Andrews, Edmund; Schoenheimer, Rudolf, and Hrdina, Leo: Etiology of Gallstones: I. Chemical Factors and the Rôle of the Gallbladder, Arch. Surg. **25**: 796-810 (Oct.) 1932. Dostal, L. E., and Andrews, Edmund: Etiology of Gallstones: III. Effect of Diet on the Bile Salt-Cholesterol Ratio, Arch. Surg. **26**: 258 (Feb.) 1933.

11. Naunyn, B.: Klinik des Cholelithiasis, Leipzig, 1892.

12. MacCarty, W. C.: The Frequency of "Strawberry" Gallbladder, Ann. Surg. **69**: 131 (Feb.) 1919.

terosis" by Mentzer.[13] The pathogenesis of this condition is now a source of acute controversy. Some investigators, as Sweet[14] and Halpert,[15] hold that it is evidence of absorption of cholesterol from the bile by the epithelium of the gallbladder; others, as Elman and Graham,[16] hold to the earlier view of Naunyn[11] and Aschoff,[17] that the gallbladder secretes cholesterol into the bile. Others, as Wilkie and Doubilet,[18] insist that the wall of the gallbladder behaves as a semipermeable membrane and that passage of cholesterol in or out depends on the relative concentration in the blood and bile. In any case, as emphasized by Twiss and Killian,[19] the concentration of cholesterol in gallbladder bile as compared to that in hepatic bile is relatively much greater than that of other biliary constituents. That the gallbladder epithelium has some secretory activity, apart from the secretion of mucus, is indicated by the experiments of Mann[4] with rose bengal.

Until recently it was a question as to whether the gallbladder ever really empties. For a long time Sweet[20] and Halpert[15] have insisted that it never empties at all. The introduction of cholecystography by Graham and Cole[1] has done much to answer this question. When cholecystography is combined with duodenal drainage, the results in normal individuals may be dramatic. In such an experiment the patient is given the dye in the usual way. The following morning, duodenal drainage is started. If successful, dilute bile (the A bile of Lyon[21]), is obtained. This bile contains little if any dye. Roentgenograms show the tip of the tube in place in the duodenum and a distended gallbladder. Stimulation by magnesium sulphate or olive oil then produces a flow of dark concentrated bile (B bile) containing much dye. This is followed by a flow of light bile (C bile) containing little dye. Roentgenograms at the end of the experiment show a marked reduction in the size of the gallbladder. While such experiments show that the gallbladder does empty, there is an extensive experimental literature which indicates that it perhaps never empties completely, as does the urinary bladder, and several days may elapse before the entire content at any one particular time is removed.

Once it is accepted that the gallbladder does empty into the duodenum, the question of the mechanism involved becomes paramount. The effect of respiratory movements, changes in intra-abdominal pressure, the elasticity of the viscus, variations in the tonus of the duodenal wall or of the sphincter of Oddi, and the existence of a reciprocal innervation between the sphincter and the gallbladder[22] have been discussed at length. More recently, attention has been focused on the rôle of the intrinsic musculature of the gallbladder. Various observers from Doyon[23] to Potter and Mann[24] have noted that when the gallbladder or common duct is connected to a manometer there are small rhythmic variations in pressure that could be interpreted as due to contractions. Boyden[25] Whitaker,[26] and Higgins and Mann[27] have conclusively shown contractions in the gallbladder of various species from fish to guinea-pigs, cats and dogs. Cholecystography furnishes at least presumptive evidence that similar contractions may occur in man. Furthermore, Ivy and his students[28] have shown the presence in animals of a hormonal mechanism (cholecystokinin) which produces contraction of the gallbladder. They believe that the efficiency of such fatty substances as cream, egg yolk, olive oil and oleic acid in producing contraction and emptying of the gallbladder is to be explained by their action in stimulating the production of cholecystokinin in the mucosa of the duodenum rather than to a specific stimulatory effect of these materials either on nerve endings in the duodenum before absorption or on the wall of the gallbladder after absorption. Ivy[29] has also shown the effectiveness of cholecystokinin in causing emptying of the gallbladder in man.

The importance of the sphincteric mechanism at the duodenal end of the common duct, as pointed out by Giordano and Mann,[30] must not be minimized. Ivy, Voegtlin, and Greengard[31] have recently reported experiments on a human subject in whom, after the injection of the cholecystokinin solution, gallbladder pain was produced by the contraction of the latter viscus concurrently with the development of spastic obstruction of the intramural portion of the common bile duct. In this case the intraduodenal administration of magnesium sulphate was effective in relieving the spasm and distress. Since cholecystokinin is formed after the eating of fats, functional disturbances analogous to those in the subject reported by Ivy, Voegtlin and Greengard[31] may explain some of the intolerance to fats, which is a frequent complaint of patients with chronic cholecystitis.

It is manifestly impossible at the present time to discuss, in detail, the pathologic lesions involving the biliary tract. Chronic cholecystitis with or without an accompanying cholelithiasis greatly exceeds all other lesions in frequency and medical importance. The problems concerned with the cause and formation of gallstones are by no means settled. It is now recognized that the gastro-intestinal disturbances, which Moynihan[32] considered the "inaugural" symptoms of

13. Mentzer, S. H.: Cholesterosis of the Gallbladder, Am. J. Path. **1**: 383-388 (July) 1925.
14. Sweet, J. E.: Function of Gallbladder, Ann. Surg. **90**: 939-947 (Nov.) 1929.
15. Halpert, Béla: The Gallbladder: Its Functions and Some of Their Disturbances in the Light of Recent Investigations, Arch. Surg. **19**: 1037-1060 (Dec., pt. 1) 1929.
16. Elman, Robert, and Graham, E. A.: The Pathogenesis of the "Strawberry" Gallbladder (Cholesterosis of the Gallbladder), Arch. Surg. **24**: 14-22 (Jan.) 1932.
17. Aschoff, Ludwig, and Bacmeister, A.: Die Cholelithiasis, Jena, Gustav Fischer, 1909. Aschoff, Ludwig: Lectures in Pathology, New York, Paul B. Hoeber, Inc., 1924.
18. Wilkie, A. L., and Doubilet, Henry: Passage of Cholesterol Through the Mucosa of the Gallbladder, Arch. Surg. **26**: 110-121 (Jan.) 1933.
19. Twiss, J. R., and Killian, J. A.: Diagnostic Methods and Metabolic Studies in Disease of the Biliary Tract: Description of the Routine Examination and Discussion of Normal Standards, Am. J. M. Sc. **186**: 418 (Sept.) 1933.
20. Sweet, J. E.: The Gallbladder: Its Past, Present and Future, Internat. Clin. **1**: 187-226 (March) 1924.
21. Lyon, B. B. V.: Nonsurgical Drainage of the Gall Tract, Philadelphia, Lea & Febiger, 1923.
22. Meltzer, S. J.: The Disturbance of the Law of Contrary Innervation as a Pathogenic Factor in the Diseases of the Bile Duct and the Gallbladder, Am. J. M. Sc. **153**: 469-477 (April) 1917.
23. Doyon, M.: Mouvements spontanés des voies biliares, Arch. d. physiol. norm. et. path. **5**: 678, 710-719, 1893.
24. Potter, J. C., and Mann, F. C.: Pressure Changes in the Biliary Tract, Am. J. M. Sc. **171**: 202 (Feb.) 1926.
25. Boyden, E. A.: The Effect of Natural Foods on the Distention of the Gallbladder with a Note on the Change in Pattern of the Mucosa as It Passes from Distention to Collapse, Anat. Rec. **30**: 333-363 (Aug.) 1925.
26. Whitaker, L. R.: The Mechanism of the Gallbladder, Am. J. Physiol. **78**: 411-436 (Oct.) 1926; The Mechanism of the Gallbladder and Its Relation to Cholelithiasis, J. A. M. A. **88**: 1542-1548 (May 14) 1927.
27. Higgins, G. M., and Mann, F. C.: Observations on the Emptying of the Gallbladder, Am. J. Physiol. **78**: 339-354 (Oct.) 1926.
28. Ivy, A. C., and Oldberg, Eric: A Hormone Mechanism of Gallbladder Contraction and Evacuation, Am. J. Physiol. **84**: 599 (Oct.) 1928. Ivy, A. C.; Kloster, G.; Lueth, H. C., and Drewyer, G. E.: On Preparation of "Cholecystokinin," Am. J. Physiol. **91**: 336-344 (Dec.) 1929. Voegtlin, W. L.; McEwen, E. G., and Ivy, A. C.: On the Humoral Agents Concerned in the Causation of Gallbladder Contraction, Am. J. Physiol. **103**: 121-130 (Jan.) 1933.
29. Ivy, A. C.: Factors Concerned in the Evacuation of the Gallbladder, Medicine **11**: 345-370 (Sept.) 1932.
30. Giordano, A. S., and Mann, F. C.: The Sphincter of the Choledochus, Arch. Path. & Lab. Med. **4**: 943-957 (Dec.) 1927.
31. Ivy, A. C.; Voegtlin, W. L., and Greengard, Harry: The Physiology of the Common Bile Duct: A Singular Observation, J. A. M. A. **100**: 1319-1320 (April 29) 1933.
32. Moynihan, G. G. A.: Inaugural Symptoms, Brit. M. J. **2**: 1597-1601, 1908.

gallstones, are the symptoms of cholecystitis and have no direct connection with the presence of stones.[33] Whether gallstones are the result of an antecedent cholecystitis or by mechanical irritation are responsible for the development of a subsequent cholecystitis is not a question that can be answered at the present time. In special cases it can be shown that one or the other of these two mechanisms is presumably responsible for the troubles of the patient, but in general they can be discussed together. However, if medical therapy is ever to supplant surgery in this field of medicine it will be necessary to recognize and correct disturbances in the biliary tract before the formation of calculi.

There are various predisposing causes that must be considered in relation to the production of either cholecystitis or cholelithiasis. Particular emphasis is placed on the effects of (1) biliary stasis, (2) infection, (3) disturbances in pigment excretion, or (4) cholesterol metabolism, (5) obesity and (6) pregnancy.

Biliary stasis with stagnation of the bile in the gallbladder is important. Such stasis presumably permits greater concentration of the bile and so favors deposition of insoluble matter. It is further assumed that stasis favors the development of both infection of the bile and inflammatory processes in the wall of the gallbladder.

Infection may involve either the bile or the gallbladder, or both. Bacteriologic studies have found streptococci, which have been considered to result from focal infection arising primarily in the teeth, tonsils or appendix. Cholecystitis is a frequent complication in typhoid, and a residual infection of the biliary tract is responsible for many typhoid carriers. This is a cause of disease of the biliary tract, which we hope is of diminishing importance. These two types of infection are usually thought to be blood borne, though whether the organism reaches the gallbladder through the bile, through the cystic artery or by lymphatic extension from the liver is a source of controversy. Hurst[34] believes that the majority of cases of cholecystitis are due to infection with the colon bacillus and are the result of an ascending infection to the gallbladder from the duodenum.

Metabolic disturbances may affect the excretion of either bile pigment or cholesterol. Small, irregular, dark brown or almost black stones composed of pigment and calcium with only slight, if any, degree of accompanying cholecystitis are frequently found in patients with congenital hemolytic jaundice. According to Giffin,[35] they occur in 58 per cent of such cases. In this condition it is recognized that there is a marked pleochromia of the bile as a result of the excessive excretion of bile pigment. Greene and Snell[36] found in dogs that the intravenous injection of bilirubin or of hemoglobin increased the excretion of pigment in the bile but that significantly this augmented rate of excretion was brought about primarily by an increase in concentration. They report two experiments in which the concentration of bilirubin in the hepatic bile rose to 1,000 mg. per hundred cubic centimeters, or from six to twenty times the usual normal values. Similarly, concentrated bile has been observed in dogs following the experimental production of anemia by the administration of phenylhydrazine. If such concentrated bile remains in the gallbladder long enough to undergo much further inspissation, it would not be surprising if deposition of the excess pigment and calculus formation should occur.

Disturbances in cholesterol metabolism frequently result in the formation of gallstones. The waxy, glistening gallstone composed of a radiating mass of cholesterol crystals is most characteristic, but, according to McNee,[37] only some 6 per cent of gallstones are of this type. Twenty per cent are combination stones in which a cholesterol stone serves as a nucleus for the subsequent deposition of pigment and calcium; 64 per cent are mixed stones built up of concentric layers of cholesterol, pigment and lime salts. It is frequently assumed that the pure cholesterol stone is deposited as the result of a primary metabolic disturbance which may be independent of any element of cholecystitis. The effect of infection in causing the deposition of pigment and calcium is evidenced in the mixed types of stones. Pickens, Spanner and Bauman[38] have recently pointed out that gallstones, on the average, consist of 94 per cent of cholesterol with only some 3 per cent of pigment and 1 per cent of calcium present. Under these conditions the importance of cholesterol and of disturbances of cholesterol metabolism in the formation of calculi is obvious.

A tremendous amount of work has been done on different phases of cholesterol metabolism, but here also there is no final agreement as to the origin, function or fate of this material. According to the recent review of Muller[39] it is probable that the cholesterol in the body is both endogenous and exogenous in origin. The relative importance of these two sources has not been finally determined, though most observers consider that the greater proportion of the cholesterol is absorbed from the food and is excreted in the bile. A smaller amount is excreted in the bowel. The presence of bile in the intestine favors the absorption of cholesterol but is not essential thereto.

According to this view the liver has a regulating function and is active in maintaining the cholesterol content of the blood at a fairly constant level. In some types of hepatic disease, especially when biliary obstruction is present, the cholesterol content of the blood is increased, while that in the bile is reduced. Normally, apart from the diurnal variations pointed out by Bruger and Somach,[40] it is difficult to affect the cholesterol level of the blood, though slight and transient increases may be produced by a meal rich in cholesterol, particularly if fats are fed in addition. There is considerable evidence that, with the prolonged use of foods rich in cholesterol, hypercholesteremia develops and is accompanied by an increased excretion of cholesterol in the bile. Independently of the cholesterol intake, diets rich in fats or any other measure that produces an increase in the fat content of the blood also produce hypercholesteremia. Diets low in cholesterol, especially if they are low in fat as well, lead to a reduction in the cholesterol content of the

33. Hurst, A. F.: Diagnosis and Treatment of Cholecystitis and Prevention of Gallstones, Brit. M. J. **2**: 676-677 (Oct. 16) 1926.
34. Hurst, A. F.: B. Coli Cholecystitis, Guy's Hosp. Rep. **82**: 396-407 (Oct.) 1932.
35. Giffin, H. Z.: Hemolytic Jaundice: A Review of Seventeen Cases, Surg., Gynec. & Obst. **25**: 152-161 (Aug.) 1917.
36. Greene, C. H., and Snell, A. M.: Studies in the Metabolism of the Bile: 2. The Sequence of Changes in the Blood and Bile Following the Intravenous Injection of Bile or Its Constituents, J. Biol. Chem. **78**: 691-713 (Aug.) 1928.
37. McNee, J. W.: Cholesterin: An Account of Its Relations to Pathology and Physiology, Quart. J. Med. **7**: 221-236, 1913-1914.
38. Pickens, M.; Spanner, G. O., and Bauman, L.: The Composition of Gallstones and Their Solubility in Dog Bile, J. Biol. Chem. **95**: 505-507 (March) 1932.
39. Muller, G. L.: The Cholesterol Metabolism in Health and Anemia, Medicine **9**: 119-174 (May) 1930.
40. Bruger, M., and Somach, J.: Diurnal Variations of the Cholesterol Content of the Blood, J. Biol. Chem. **97**: 23 (July) 1932.

blood. If hypercholesteremia is present, such diets frequently produce a return to normal but do not reduce the cholesterol content of the blood below normal. We have found hypercholesteremia in a large proportion of patients with chronic cholecystitis or cholelithiasis without biliary obstruction. The bile cholesterol is increased in some but not all cases. In these cases a diet low in cholesterol and at times the use of repeated duodenal drainages frequently results in a return toward normal of the blood cholesterol, associated with an improvement in the clinical condition of the patient.

There is a definite sex difference in the incidence of cholecystitis and cholelithiasis, and various factors have been proposed to explain the greater frequency in females. Two of the most important of these are obesity and pregnancy.

In obesity there seems to be a disturbance in cholesterol metabolism, but a definite relation between the cholesterol content of the blood and the degree of obesity has not been established. Rapid weight reduction or starvation with mobilization of fat apparently liberates considerable quantities of stored cholesterol and produces a resultant hypercholesteremia. Under these conditions it should be emphasized that while weight reduction is important in the obese patient it should be gradual, and care should be taken to avoid stasis during the period of reduction.

Hypercholesteremia also occurs in pregnancy; apparently this is due in part to retention for, according to Pribram [41] and to Bacmeister,[42] the bile cholesterol is at first reduced. In the later months of pregnancy and post partum the retained cholesterol was found by McNee [43] and Bacmeister to be eliminated in part in the bile. Bodily activity is apt to be reduced during pregnancy and constipation is usual. In addition, Mann and Higgins [44] have recently shown that the muscular activity of the gallbladder is diminished in pregnant animals. All these factors promote biliary stasis and so favor the formation of calculi and the development of biliary infection during pregnancy.

The fundamental requirement for satisfactory results in the treatment of gallbladder disease is a correct initial diagnosis. A careful and complete diagnostic work-up is essential, for there is no one method of diagnosis that is infallible. In the majority of patients, symptoms are usually indefinite. Typical colic is by no means always associated with stones. Physical examination is frequently of little assistance, except in acute conditions or in cases of jaundice. The limitations of cholecystographic study must be recognized, for a diseased gallbladder may visualize and empty normally even though stones are present. Conversely, there may be no visualization on repeated cholecystographic examination and still laparotomy may reveal an apparently normal gallbladder. We have found nonsurgical biliary tract drainage a valuable supplementary method of diagnosis, provided the drainage is properly performed and the results are correctly interpreted, particularly in regard to the absence of concentrated bile or the presence of pathologic elements in the biliary sediment.

41. Pribram, E. E.: Cholesterol Metabolism in Pregnancy and Childbirth, Arch. f. Gynäk. **119:** 57-68 (June) 1923.

42. Bacmeister, A., and Havers, C.: Zur Physiologie des Cholesterinstoffwechsels, Deutsche med. Wchnschr. **40:** 385-388, 1914.

43. McNee, J. W.: Zur Frage des Cholestearingehalts der Galle während der Schwangerschaft, Deutsche med. Wchnschr. **39:** 994-996, 1913.

44. Mann, F. C., and Higgins, G. M.: Effect of Pregnancy on the Emptying of the Gallbladder: A Preliminary Report, Arch. Surg. **15:** 552-559 (Oct.) 1927.

The selection of a group of 500 patients as having gallbladder disease has been made in the clinic for diseases of the biliary tract at the New York Post-Graduate Hospital, in accordance with the complete diagnostic routine described elsewhere.[19] In addition to the examination of the biliary tract, other tests such as urinalyses and blood counts have been done as a routine. When indicated, roentgenologic studies of the gastro-intestinal or urinary tracts have been made. The patients who gave evidence of biliary tract disease only have been studied over a period of three years, the initial diagnostic study being repeated periodically to determine the effects of treatment and to correlate these observations with the clinical course of the disease. Details as to the results of the treatment will be published in a subsequent paper.

The general plan of medical treatment followed in these patients has been based on consideration of the foregoing principles and may be considered under the heading of (1) prevention of biliary stasis, (2) prevention or treatment of inflammation of the gallbladder or bile ducts, (3) diet and (4) removal of calculi when once formed. So far, progress other than surgical in this last type of therapy has been nil and need not be considered further.

The value of attention to the general hygiene of the patient, of regular habits, moderate exercise, deep breathing, avoidance of constipation, freedom from mental strain and worry and the like has been amply demonstrated by experience. In the past this improvement has been ascribed largely to the relief of biliary stasis. Horseback riding has long been favored to stir up a sluggish liver and cause emptying of the gallbladder. In the light of present knowledge of the physiology of the biliary tract, it would seem now that the value of such measures is to be ascribed as much to the improvement in muscular tone and the state of the general health of the patient as to any specific action on the gallbladder. This remark, however, is not to be interpreted as in any way minimizing the importance of such general measures.

Removal of foci of infection, particularly as regards the teeth and tonsils, is important as a means of preventing or treating infection in the biliary tract. Hurst,[34] among others, has emphasized the importance of attacks of indigestion or acute gastritis in permitting ascending infection of the biliary tract, particularly with colon bacilli. He also stresses the value of methenamine as a biliary antiseptic in such cases.

Various spas have long been favored for the treatment of diseases of the liver and biliary tract. Apart from regulation of the hygiene of the patient and the use of diets, this type of therapy depends on the use of mineral waters. These contain saline cathartics in varying amounts, the active agent usually being magnesium sulphate, sodium sulphate, sodium phosphate or a mixture of these salts. It is now accepted that saline cathartics as well as the ever popular calomel have little action in stimulating the secretion of bile, but they prevent constipation, ensure regular action of the bowels, and favor emptying of the gallbladder. The use of duodenal drainage also facilitates the latter. This is a valuable diagnostic procedure, but questions of time and expense lessen its value as a routine therapeutic measure.

Alkaline powders when given before meals frequently relieve reflex gastric symptoms. Sedatives such as phenobarbital or bromides give excellent results, espe-

cially in nervous or neurotic patients. The use of these drugs with antispasmodics or alkalis at times is especially effective. We have used cholagogues with symptomatic relief in some cases, sodium dehydrocholate being the preparation usually given.

While the occurrence of a typical biliary colic followed by jaundice is diagnostic, it usually indicates the presence of gallstones and the need for surgical rather than medical management of the patient. The early symptoms of cholecystitis, the "inaugural symptoms of cholelithiasis" of Moynihan,[32] are not localized to the biliary tract. Much of the epigastric fulness and distress, the flatulence and nausea of which these patients complain is due to disturbances in the activity of the stomach, duodenum and bowels, produced partly as a result of secondary reflex disturbances and partly as a result of interference with normal digestion. This relationship has been pointed out by von Noorden and Salomon,[45] Chester Jones,[46] and recently discussed in detail by Alvarez.[1]

Von Noorden [47] has called attention to the secretory disturbances of the stomach and intestinal tract which he attributes to catarrhal conditions. He states that gastric hypo-acidity may not produce any symptoms but nevertheless has an effect on the biliary tract, particularly in regard to the loss of protective action against external bacterial invasion. Hyperacidity, he feels, is more frequently associated with pain and furthermore produces excessive stimulation of the bile flow. This can be prevented by regulation of the acidity. Von Noorden [47] also calls attention to the frequent association of the "lazy colon" with gallbladder disease. The importance of the spastic sigmoid is emphasized particularly, for it sometimes causes colic which may be mistaken for biliary colic.

The value of frequent small meals and of a bland, nonirritating diet that is free from coarse fiber and leaves only a small residue is generally accepted as basic in the treatment of chronic cholecystitis and the associated gastro-intestinal disturbances. The various topics previously discussed in this paper, however, show that no single diet is applicable to the management of all patients.

When the patient is obese, reduction in weight is imperative. In this case, fats should be eliminated from the diet and the intake of cereals and starches reduced to keep the total intake of food below the caloric requirements.

A certain proportion of patients with disease of the biliary tract complain of intolerance to food. Some have been literally "afraid to eat" and are semistarved and underweight in consequence. In such cases the bland diet is important. In addition, when the patient is underweight every effort should be made to increase the caloric intake. Frequent feedings, either four or five small meals daily or the use of intermediate nourishment between the usual three meals, a liberal intake of starches and cereals, and, if possible, the addition of cream, butter or olive oil to the diet is desirable to facilitate gain in weight.

In some instances the intolerance to food is due to reflex gastric disturbances with the development of the syndrome of hyperacidity, which is usually considered characteristic of peptic ulcer. In such cases a modified ulcer type of management with or without the use of alkalis is indicated.

Many patients show a definite intolerance to fats. The importance of bile in the absorption of fats has long been known. This is partly due to its action in activating the pancreatic lipase, partly to the action of the bile salts in favoring emulsification and solution of the fats and partly, as more recently emphasized by Wieland and Sorge [48] and by Verzár and Kúthy,[49] to the formation of addition compounds between the bile salts and the fatty acids, which are thereby absorbed directly into the portal blood stream.

Friedrich von Müller [50] long ago showed the great diminution in the absorption of fat that occurs in the presence of complete biliary obstruction. Many patients with cholecystitis complain of discomfort following a fat meal, which is probably best explained by the effect of fats in stimulating the formation of cholecystokinin. This stimulates the gallbladder to contract and, in the presence of active inflammation or of any disharmony in the reciprocal action of the gallbladder and the sphincter of Oddi, may well cause pain. On the other hand, if there is no intolerance, cream, egg yolk, olive oil or oleic acid are valuable additions to the diet, for in the presence of a functionally competent gallbladder they stimulate the formation of cholecystokinin and aid biliary drainage.

TABLE 1.—*Cholesterol Content of Various Foodstuffs*

Food	Per Cent	Food	Per Cent
Brain, cattle	3.7 -2.7	Rabbit, whole	0.117
Liver	3.4 -0.3	Bacon, fat	0.108
Kidney, mutton	3.4 -0.24	Corn, sweet	0.100
Pancreas, calf	3.12	Meat, chicken	0.108-0.059
Thymus, calf	2.3	Meat, veal	0.088-0.084
Roe, salmon	2.2	Meat, beef, fresh	0.076
Egg, yolk	2.15 -1.34	Meat, pork	0.048-0.046
Egg, whole	0.49 -0.24	Cream cheese	0.088
Chicken	0.527-0.059	Bacon	0.078-0.038
Fats, lard, suet	0.35 -0.10	Flour, white	0.026
Muscle, dried (beef)	0.23	Rice	0.026
Butter	0.22 -0.185	Milk, cow's	0.03 -0.013
Blood, beef	0.194		

The significance of hypercholesteremia in relation to the possible formation of gallstones has already been discussed. The routine determination of the cholesterol content of the blood is a valuable procedure in these patients. When this value is increased, foods rich in cholesterol, such as brain, eggs, butter, goose, duck, liver, sweetbreads or cream, should be excluded from the diet.

The cholesterol content of various foodstuffs is given in table 1. This represents a compilation of the majority of values given in the literature [51] for the cholesterol content of food. Many of the analyses are old. There is no distinction between cholesterol and other sterols. The need for a more accurate and comprehensive series of analyses is obvious. In the past, beans and peas have been proscribed, but Schoenheimer [52]

45. von Noorden, C. H., and Salomon, H.: Handbuch der Ernährungslehre, Klinischen Medizin Allgemeine Enzyklopaedie der Diätetik, Berlin, Julius Springer, 1920.
46. Jones, C. R.: Study of Influence of Drugs and Food Substances on Discharge of Bile into the Duodenum, Tr. Am. Gastro-Enterol. A. **29:** 237-242, 1927.
47. von Noorden, C. H.: Diätetik bei Gallensteinkranken, Chirug **1:** 1233 (Dec. 15) 1929.
48. Wieland, H., and Sorge, H.: Untersuchungen über die Gallensäuren: 2. Zur Kenntnis der Choleinsäure, Ztschr. f. physiol. Chem. **97:** 1-27, 1916.
49. Verzár, F., and von Kúthy, A.: Die Bedeutung der gepaarten Gallensäuren für die Fettresorption, Biochem. Ztschr. **230:** 451-457, 1931; Die Bedeutung der Gallensäuren für die Fettresorption (Arbeiten über Resorption), ibid. **205:** 369-379, 1929.
50. von Müller, Friedrich: Untersuchungen über Icterus, Ztschr. f. klin. Med. **12:** 45-113, 1887.
51. Abderhalden, Emil: Biochemisches Handlexikon **3:** 268-309. Brüger, M.: Ergebnisse der inneren Medizin und Kinderheilkunde, Berlin, Julius Springer, 1928. von Noorden, C. H., and Salomon, H.: Enzyklopaedie der klinischen Medizin, Handbuch der Ernährungslehre, p. 44.
52. Schoenheimer, R.: Die Spezifität der Cholesterinresorption und ihren Biologische Bedeutung, Klin. Wchnschr. **11:** 1793 (Oct. 22) 1932.

has recently pointed out that while they contain considerable amounts of sterol the latter is not cholesterol but phytosterol, which is not absorbed by the mammalian intestine. These vegetables may therefore be included in the diet. In addition, the fat content of the commoner foods is given in table 2.

These tables have been used in the selection of a series of diet lists embodying the principles here discussed. Their usefulness has been amply demonstrated in practice, as they have been in use for over three years.

The general principle of a bland diet is followed in each of the five diets. The first three diets are limited in cholesterol and fat intake and are indicated for those patients having an intolerance to fats, active inflammation of the gallbladder, a nonfunctioning gallbladder (as shown by biliary tract drainage and lack of visualization on cholecystographic study), a hypercholesteremia or cholelithiasis. Diet 1 has a low caloric value for use in obese patients. Diet 2 differs from diet 1 in that it has an increased carbohydrate and caloric value and is therefore useful in underweight patients as well as in cases of cirrhosis of the liver or jaundice. Diet 3 differs in the more strict avoidance of all stimulating and irritating foods and is used for patients having excessive gastric hyperacidity. Diets 4 and 5 are relatively high in cholesterol and moderately high in fat content; these diets are used to stimulate the evacuation of the gallbladder in patients having an atonic or poorly functioning gallbladder (with patent cystic duct) without fat intolerance, hypercholesteremia or cholelithiasis. Diet 4 is low in caloric value (for obese patients). Diet 5 is high in carbohydrate and caloric value.

These diet lists are not to be considered all inclusive. The importance of individualization in the management of each patient is to be stressed.

General Directions for Use With the Gallbladder Diets

Meals: Meals should be small in amount and taken at the same time each day. Large meals and overeating are detrimental. Chew all food carefully; the teeth must be in good condition.

Rest: A rest of a half hour lying down should be taken after the noon and evening meals. This allows the food to digest, which is impossible with mental or physical work immediately following meals.

Bowel Movements: An effort should be made to move the bowels every day after breakfast, regardless of inclination. If the bowels do not move every day this should be reported to the physician so that medication may be prescribed.

Exercise: A proper amount of outdoor exercise is essential for the proper functioning of the gallbladder and all other organs. A walk of at least forty blocks should be taken every morning, deep breathing being taken at this time to stimulate the action of the gallbladder.

Water: At least eight glasses of water are to be taken daily. A glass of water, preferably hot, should be taken on arising in the morning. The other water should be taken between meals rather than with meals.

Medication: As directed by the physician.

DIET 1.—*Low Cholesterol, Low Fat, Low Caloric*

Breakfast

Fruit: Orange juice, baked apple, apple sauce, or stewed prunes, with a little sugar and milk, no cream.

Eggs: One egg may be taken three times weekly, soft boiled or poached, with a thin slice of lean, crisp bacon.

Bread: A half slice of toasted white bread with a little marmalade, jelly or jam.

Beverages: A small cup of coffee, Sanka coffee, Postum or tea, with 1 teaspoonful of cream, 1 lump of sugar.

Lunch and Dinner

Soups: A small portion of consommé, chicken, tomato or clear vegetable soup may be taken once daily. No creamed soups or fats.

Meats: A small portion of lean meat or fish, twice daily.
Meat: Roast beef, lamb (leg), chicken, ham.
Fish: Cod, trout, halibut, weakfish, bluefish, blackfish, flounder, striped bass, red snapper.

Vegetables: Two green vegetables daily, as spinach, peas, beans, beet tops, asparagus, string beans; or beets, carrots, squash, boiled mushrooms, stewed tomatoes, stewed celery, boiled okra. Not prepared or eaten with butter or cream.

Salads: Lettuce with stewed fruits or with cooked vegetables. Liquid petrolatum or lemon dressing.

Bread: As above.

Beverages: As above, or a small glass of buttermilk.

Desserts: Stewed fruits, as peaches, pears, plums, cherries, grapes, prunes, pineapple or apple sauce. Gelatin, fruit ices, prune soufflé.

Avoid:
Butter, cream, meat fats, grease gravies.
All foods fried, hashed or warmed over.
Inner organs, as brain, liver, kidneys, sweetbreads.
All rich and highly seasoned foods, creamed foods, and foods prepared with cream, butter or eggs.
Oils, as olive oil, cod liver oil, salad dressings.
Heavy cheeses, nuts, olives, spiced foods.
Candies, cakes, pies, pastries, chocolate, cocoa.
Acid foods, condiments, alcohol, smoking
Rough foods, as cabbage, cucumbers, pickles, bran and whole wheat products.
With digestive disturbances, salads, raw fruits and raw vegetables should be omitted; all vegetables should be puréed.

DIET 2.—*Low Cholesterol, Low Fat, High Caloric*

Breakfast

Fruits: Orange juice, baked apple, apple sauce or stewed fruits, as prunes, pears, peaches, with milk and sugar.

Cereals: Cooked, as farina, cream of wheat, wheatena, oatmeal, rolled oats, with milk and sugar.

Eggs: One egg may be taken three times weekly, soft boiled or poached, on toast, with 2 slices of lean crisp bacon.

Bread: Two slices toasted white bread, rolls or corn bread, with jam, marmalade or jelly.

Beverages: Milk, half milk and coffee, Sanka coffee, Postum or weak tea, with 1 teaspoonful of cream and 2 lumps of sugar.

Lunch and Dinner

Soups: Small portions of tomato, chicken, plain vegetable, gumbo or oxtail.

Meats: Lean meat or fish at least once daily.
Meats: Roast beef, chicken, ham or lamb.
Fish: Cod, trout, weakfish, whitefish, bluefish, flounder, striped bass, blackfish, red snapper.

Vegetables: Potatoes, baked, mashed or boiled; or sweet potatoes, macaroni or spaghetti. Spinach, peas, beans, beet greens, beets, carrots, squash, asparagus, boiled mushrooms, string beans, stewed tomatoes or celery. Not to be eaten or prepared with butter or cream.

Salads: Lettuce with stewed fruits, canned fruits, or cooked vegetables, with liquid petrolatum or lemon dressing.

Bread: As above.

Beverages: As above, or malted milk.

Desserts: Puddings, as bread, tapioca, cornstarch or sago. Stewed fruits, as peaches, pears, plums, prunes, berries, apple sauce, baked apple, with milk and sugar. Gelatin, junket, baked banana, plain cake.

Intermediate feedings: A glass of milk, malted milk or ovaltine, to be taken at 10 a. m., 4 p. m. and at bedtime. With zwieback, plain or arrowroot crackers, breadsticks or toast. Jelly or marmalade may be added if desired.

Avoid: Foods listed to be avoided in diet 1.

DIET 3.—*Bland Low Cholesterol for Gastric Hyperacidity*

Breakfast

Fruits: Stewed or canned, as peaches, pears, apricots, prunes. Baked apple, apple sauce, no sugar added.

Cereals: Cooked, as farina, cream of wheat, wheatena, strained oatmeal, with milk and little sugar.

Eggs: One egg, soft boiled or poached, on toast, with a slice of lean crisp bacon if desired.

Bread: One slice of toasted white bread with marmalade or jelly.

Beverages: Milk, Postum, weak tea, with milk and sugar.

Lunch and Dinner

Meats: Lean meat or fish twice daily, not fried.
Meats: Roast beef, chicken, lamb, ham, chopped meat.
Fish: Cod, trout, weakfish, whitefish, blackfish, flounder, striped bass, haddock, pike.

Vegetables: Potatoes, baked, boiled or mashed. Macaroni or spaghetti, no sauce. Vegetables, puréed only, as carrots, beets, spinach, peas, beans, asparagus tips, squash.

Salads: Lettuce with stewed fruits or cooked vegetables, liquid petrolatum dressing.

Bread: As above

Beverages:	Milk or malted milk.
Desserts:	Puddings, as cornstarch, bread, tapioca, sago. Stewed fruits, as pears, peaches, prunes, cherries. Gelatin. Baked banana.
Avoid:	Foods listed to be avoided in diet 1.

DIET 4.—*High Cholesterol, Low Caloric*

Breakfast

Fruits:	Orange juice or stewed fruits, as peaches, pears, prunes. Baked apple, apple sauce with cream and sugar.
Eggs:	One egg (soft boiled or poached) may be taken daily with a slice of lean, crisp bacon.
Bread:	A half slice of toasted white bread with butter.
Beverages:	Milk, tea, coffee or Postum, with cream and sugar.

Lunch and Dinner

Soups:	A small portion of consommé, vegetable, oxtail, pea or tomato soup may be taken once daily.
Meats:	A small portion of lean meat or fish twice daily. Meats: Chicken, roast beef, lamb chop, leg of lamb, mutton or veal. Fish: Cod, trout, halibut, weakfish, whitefish, flounder. Brains, liver, kidneys or sweetbreads three times weekly.
Vegetables:	Two at each meal (preferably green), as spinach, asparagus, string beans, beet greens, carrots, squash, stewed tomatoes, celery or okra.
Salads:	Lettuce with canned or stewed fruits. Liquid petrolatum.
Bread:	As above.
Beverages:	As above.
Desserts:	Stewed fruits, as peaches, pears, pineapple, cherries. Gelatin, stewed fruits, apple sauce, prune soufflé.
Avoid:	All foods fried, hashed or warmed over. Rich and highly season foods, spices, condiments. Heavy cheeses, nuts, olives, pickles. Candies, cakes, pies, pastries, chocolate, cocoa. Rough foods, as cabbage, cucumbers, bran and whole wheat products. With digestive symptoms, salads, raw fruits and raw vegetables should be omitted; all vegetables should be puréed.

DIET 5.—*High Cholesterol, High Caloric*

Breakfast

Fruits:	Orange juice, stewed or canned fruits or prunes. Baked apple, apple sauce, with cream and sugar.
Cereals:	Cooked, as wheatena, cream of wheat, farina, oatmeal, with cream and sugar.
Eggs:	Two soft boiled or poached eggs daily, with two slices of lean, crisp bacon.
Bread:	Two slices of toasted white bread with butter.
Beverages:	Tea (weak), milk, Postum, with cream and sugar.

Lunch and Dinner

Soups:	Consommé, creamed, tomato, vegetable, oxtail.
Meats:	A small portion of lean meat or fish. Meats: Lamb chops, roast lamb, leg of lamb, chicken or other fowl, roast beef, steak. Fish: Shad, trout, halibut, weakfish, whitefish, pike, flounder, bass, blackfish. Brains, liver, kidneys or sweetbreads three times weekly.
Vegetables:	Baked, boiled or mashed potato with cream or butter; or macaroni or spaghetti. Spinach, asparagus, carrots, beets, beet greens, squash, boiled mushrooms, stewed tomatoes.
Salads:	Lettuce with stewed fruits or cooked vegetables. Mayonnaise, liquid petrolatum or lemon dressing.
Bread:	Two slices toasted white bread, with butter.
Beverages:	As above.
Desserts:	Custards, puddings, as rice, tapioca, bread. Stewed fruits or canned fruits with crackers. Baked apple, apple sauce with cream and sugar. Plain cake, ice cream, junket, gelatin.
Olive oil:	A teaspoonful of olive oil is to be taken a half hour before each meal, this amount is to be increased a teaspoonful each week until a tablespoonful is taken before each meal.
Intermediate feedings:	A glass of milk, malted milk, egg nog or ovaltine is to be taken at 10 a. m., 4 p. m. and at bedtime, with zwieback, crackers, toast or breadsticks. Butter or jam if desired.
Avoid:	Foods listed to be avoided under diet 4.

CONCLUSION

If due attention is given to the physiologic disturbances responsible for the symptoms of which the patient complains and if physiologic principles are kept in mind during the treatment, improvement is possible in the present medical management of diseases of the gallbladder and biliary tract.

65 East Fifty-Fifth Street—889 Lexington Avenue.

ABSTRACT OF DISCUSSION

DR. SIDNEY A. PORTIS, Chicago: It is important to devise some medical measures for handling these patients so that they get symptomatic relief. It is difficult to evaluate very early in the disease which gallbladders will respond to medical management and which may need surgical intervention. The test of time is probably the best method of evaluating which should be the course. Certain patients seem to respond better to very high carbohydrate and low fat diets, but in the undernourished a moderate amount of fat may be definitely indicated. I have found a large number of overweight, obese patients, particularly women around 35 to 45, suffering from an associated hypothyroidism. Routine basal metabolic tests in these women have shown a rate of minus 15, 20, 25 or 30. The addition of small doses of thyroid extract to the medication seems to be particularly effective in raising the metabolism. It is well known that in hypothyroidism there is a sluggish movement of the gastro-intestinal tract. There is a group of patients who have a sensation of nausea, vertigo, fulness and distention, which seem to be related to the movements more of the first and second portion of the duodenum. I have found that hydrochloric acid may be particularly effective in promoting the movements of the upper intestinal tract in these patients in spite of the fact that they have normal, sometimes slightly increased, and sometimes slightly decreased acidity in the stomach. Many of these patients have become comfortable under this management. The important cardinal feature to remember in gallbladder disease is that one must protect the liver function. I know of no better method of protecting liver function than by the use of carbohydrates. I could find no appreciable elevation of blood cholesterol after feeding patients 3 Gm. of cholesterol and concluded that the reason for this presumed hypocholesteremia was the inability of the liver to form the cholesterol ester fraction from the cholesterol. This was first brought out by Epstein, working at the Mount Sinai Hospital.

DR. C. B. WRIGHT, Minneapolis: I should like to ask whether there was any definite evidence that attacks of cholecystitis were prevented by this method of treatment.

DR. W. D. MAYER, Detroit: I should like to ask whether the authors use nonsurgical drainage of the gallbladder at all in their treatment.

DR. F. W. MULSOW, Cedar Rapids, Iowa: What evidence do the authors have that bile salts stimulate the liver? The reason I ask is that I am circularized by drug houses to buy bile salts for all kinds of gastro-intestinal disturbances and especially in gallbladder disease. I can't find much evidence of bile salts helping in constipation. I don't know that it stimulates the liver.

DR. CARL H. GREENE, New York: It is our impression that in many cases duodenal drainage, perhaps by relieving biliary stasis, is of therapeutic value. Dr. Wright's question as to the number of attacks of cholecystitis that have been prevented is difficult to answer because of the silent gallstone. I don't think that anybody can explain all the factors that determine why the gallstone is silent or why it causes symptoms. One can show experimentally by giving bile salts intravenously in an animal with a bile fistula, or giving bile salts orally to animals with a bile fistula, that it results in an increase of flow of bile with secretion of the given bile salts after four to six hours. On the other hand, from the clinical standpoint the relation of the flow of bile to such factors as constipation is difficult to answer. Most of the pharmaceutic houses recommend tablets that are essentially homeopathic so far as the dose is concerned. The matter of the clinical use is by no means settled and requires further work for its elucidation. The point that Dr. Twiss and I want to emphasize is that by taking advantage of the known physiologic facts and by the individualization of the patient from the standpoint of idiosyncrasy and interpretation of the clinical syndrome, the methods of medical management can be improved. It is to be hoped that it will be possible to improve methods still further, because it is only by early diagnosis and treatment that I see any prospects of the prevention of gallstones. Until that question is solved, the medical treatment of biliary tract disease cannot hope to supplant the surgical treatment.

THE PRACTICAL APPLICATION OF EXCRETORY (INTRAVENOUS) UROGRAPHY

WILLIAM F. BRAASCH, M.D.
ROCHESTER, MINN.

The name of this new method of urographic visualization, which has become one of the most valuable aids in clinical diagnosis, deserves consideration. Since its inception it has been most often referred to by the term "intravenous urography," which was adopted to distinguish it from "cystoscopic" or "retrograde urography." It has also been referred to as "descending" or "excretion urography" by European observers. "Excretory urography" would seem the logical term, since it is physiologically descriptive and, in view of recent and portending advances in oral administration, would be quite acceptable.

The members of the medical profession have been inexcusably slow in availing themselves of the opportunities offered by excretory urography in the diagnosis of abdominal lesions. Judging from the frequent requests made by patients for excretory urography rather than cystoscopy, it might be inferred that laymen are more familiar with the method than some physicians. It should and probably will be employed in the near future as a routine method in the diagnosis of abdominal conditions. Probably the greatest obstacle to its general employment has been the problem of urographic interpretation. This will, no doubt, always limit its general use largely to fields in which changes in the outline of the renal pelvis will be so extensive that the lesion is easily recognized. Nevertheless, many of the deformities of the renal pelvis will soon be roentgenologically standardized in a manner similar to lesions of the alimentary tract, so that any one with roentgenographic experience should be able to interpret most urograms with a fair degree of accuracy. Errors in interpretation undoubtedly will arise, and the necessity for correlation with cystoscopic and other data will often be present. However, excretory urography will no doubt make it possible for the general clinician to recognize many lesions that would otherwise be overlooked or that were formerly discovered only with the aid of complicated urologic apparatus. The excretory urogram will be of greatest practical value to clinical diagnosis in (1) determining the presence of stasis in the renal pelvis or ureter, (2) aiding in interpretation of shadows in the upper part of the urinary tract, and (3) giving a fairly accurate estimate of renal function.

The change in attitude among urologists toward excretory urography is of considerable interest. Following the pioneer work of Rowntree and his associates, the practical application by Roseno [1] and by Swick,[2] and the clinical contributions by von Lichtenberg and Swick [3] the method at first was received with skepticism and apprehension. However, as its clinical value was demonstrated their attitude changed completely, and now there are a few urologists who go so far as to claim that the cystoscope is no longer necessary in the diagnosis of renal lesions. It is true that excretory urography has replaced the former methods of urologic investigation to some extent. It should be stated, however, that retrograde urography is still of great value, particularly in the recognition of minor deformity, and has supplied data that could be acquired in no other way. The data obtained from the combined use of excretory and retrograde urography will often give more complete information than when either method is used alone. On the other hand, it must not be inferred that visualization of the renal pelvis and ureter will give all the data that are necessary to complete clinical appraisal. Other than accurate urographic interpretation, often there are data of equal importance which only an experienced urologist can supply.

Excretory urography is frequently disappointing because of inadequate visualization of the pelvis and calices. Often in a case in which clear visualization is most needed the pelvic outline is so dim and uncertain as to render exact interpretation impossible. Failure of visualization may be due to a lesion in the kidney, rapidity of excretion and excessive peristalsis or a technical factor, and its cause may be difficult to determine. Complete failure of visualization on one side in repeated films must be interpreted as indicative of renal dysfunction. It is of importance to determine whether the dysfunction is secondary to some temporary lesion or irritant that can be corrected or whether the renal tissue is actually destroyed. With failure of visualization it is often advisable to corroborate evident dysfunction by means of cystoscopic inspection of the ureteral orifice and with the aid of dye tests. An approximate appraisal of the pelvic outline can be obtained often by piecing together the combined data obtained from several films taken at different intervals. One of the dangers of dim visualization, however, is that the interpreter is likely to take too much for granted and assume a condition to be normal or abnormal from insufficient data. The mere fact that pelves are visualized, even though incompletely, will often be sufficient to demonstrate that function remains to the kidney. When advanced disease of the kidney has been surmised from the preliminary clinical or cystoscopic data, the value of visualizing a comparatively normal pelvic outline, even though incompletely, is self evident.

Fairly clear visualization on one side, and poor visualization on the other, does not necessarily indicate a lesion in the latter side. In fact, a pelvis that is incompletely visualized may easily be confused with deformity, and in the hands of an inexperienced observer more harm than good may be done.

A difference in the degree of visualization of the two kidneys is often observed when no other evidence of change is apparent. There may be also a difference in the time of visualization, one pelvis being much better visualized in the first film and the other in a later film. There also is variation in the time of emptying. When the latter is very much retarded it usually indicates stasis resulting from actual obstruction, or from atonic changes caused by an active lesion or one previously present but now healed. Exact interpretation of moderate delay in visualization may be difficult.

HYDRONEPHROSIS

Excretory urography permits clinical recognition of hydronephrosis by means of a comparatively simple method, and as a result many cases of hydronephrosis

From the Section on Urology, the Mayo Clinic.
Read before the Section on Urology at the Eighty-Fourth Annual Session of the American Medical Association, Milwaukee, June 14, 1933.

1. Roseno, A.: Studien zur intravenöse Pyelographie, Verhandl. d. deutsch. Gesellsch. f. Chir. **8**: 431-433, 1928; Die intravenöse Pyelographie, Arch. f. klin. Chir. **157**: 64-66, 1929.

2. Swick, Moses: Darstellung der Niere und Harnwege im Röntgenbild durch intravenöse Einbringung eines neuen Kontraststoffes des Uroselectans, Klin. Wchnschr. **8**: 2087-2089 (Nov.) 1929; Intravenous Urography by Means of Uroselectan, Am. J. Surg. **8**: 405-414 (Feb.) 1930.

3. von Lichtenberg, A., and Swick, Moses: Klinische Prüfung des Uroselectans, Klin. Wchnschr. **8**: 2089-2091 (Nov.) 1929.

are being diagnosed by the general practitioner which otherwise would be overlooked. Recognition of the deformity in the outline of the renal pelvis caused by well defined hydronephrosis should not be difficult, even to a physician who has had limited experience in roentgenographic interpretation. Although it is true that there may be some difficulty in the interpretation of slight pyelectasis (fig. 1) and in complicating deformities, there are few obstacles to general interpretation in most cases in this field.

One of the advantages of the excretory urogram is the ability it gives to compare the outline, time of appearance and disappearance, and degree of visualization of the two renal pelves; these data are of considerable importance in determining whether minor degrees of stasis are present. In a large number of cases, pyelectasis is bilateral. Although it is usually much greater on one side, there will often be evidence of a variable degree of pyelectasis or other deformity on the other side. It occasionally happens that, although the symptoms will be referred to one kidney, the degree of pyelectasis in the other side may be of equal or greater extent. Visualization of the dilated pelvis may be retarded and dim in the early films and completely visualized only in later films. With extensive hydronephrosis, visualization of the pelvis is often retarded and may be inadequate even in the late films. At times, only a few dilated calices are outlined, and in some cases no evidence of the injected dye is visible until one or two hours after injection. With rapid excretion of the dye and unobstructed drainage while the urogram is being made, the complete extent of the hydronephrosis may not be visualized, and in such cases the pyelectasis may be more completely visualized by the retrograde method. In all doubtful cases it is advisable to visualize the pelvis by both retrograde and excretory urograms. In the course of routine urography, minor degrees of pyelectasis are often observed which have caused no symptoms and apparently are of no clinical significance.

Excretory urography gives the surgeon an excellent opportunity to follow the results of operation on the hydronephrotic pelvis. The changes in the pelvic outline visualized subsequent to plastic operation are often of considerable interest and give a valuable indication of the results.

RENAL PTOSIS

Although the presence of renal ptosis usually can be determined in the course of abdominal palpation, the comparative degree of ptosis and of the excursion of both kidneys in varying positions can be determined more accurately in the excretory urogram. In the course of abdominal examination, evidence of ptosis of only one kidney often is found, whereas in the excretory urogram ptosis of equal degree is often found on both sides. Renal ptosis usually can be determined without the aid of urography, but not the indications for operation. It is now generally recognized that, unless there is definite evidence of renal stasis, nephropexy is usually not indicated. Excretory urography offers an ideal method for determining minor degrees of stasis. Comparative delay in time and degree of visualization, or in emptying on the side involved, may be of considerable diagnostic importance. Should these data be found on the side opposite to the localization of pain, as occasionally happens, the situation may be confusing. It may be surmised that, if excretory urography is employed in all cases of renal ptosis in which surgery is contemplated, in order to determine the comparative degree of ptosis and the presence of stasis, only few operations for nephropexy will be performed.

RENAL LITHIASIS

Excretory urography is probably more often of value to the general practitioner and surgeon in the diagnosis and study of lithiasis than in any other field. The excretory urogram permits identification of shadows seen in the renal area in the flat film. It also establishes their intrarenal situation and allows visualization of coincident complications and of the relative functional capacity of either kidney. In fact, all the data necessary for operation are evident without cystoscopic examination in the majority of cases of renal lithiasis, and with these data the surgeon can proceed with assurance. However, many cases of renal stone remain in which the cystoscope will be of value. When there is a history of or evidence of gross hematuria or pyuria,

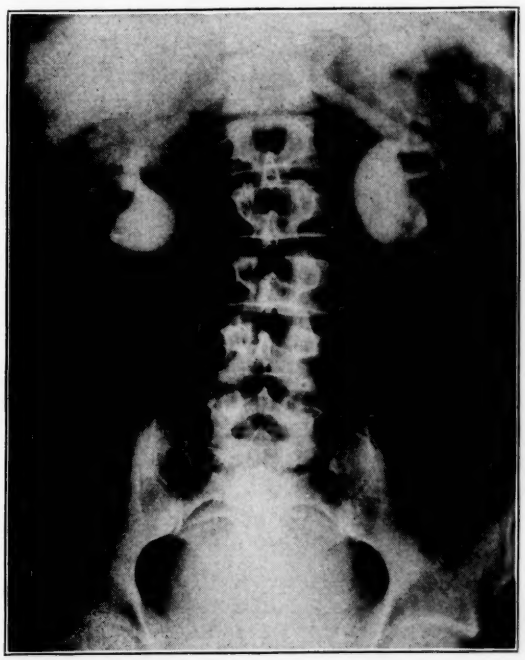

Fig. 1.—Excretory urogram showing bilateral pyelectasis, more marked on left side.

cystoscopy usually will be advisable in order to determine the source. If there is a shadow suggestive of unilateral renal calculus visible in the flat film and there is evidence of pyuria or hematuria, it does not necessarily follow that the latter has its origin in the kidney containing the stone. Not only will the other kidney have to be excluded from consideration, by cystoscopy, but the lower part of the urinary tract as well. Some difficulty may arise in interpreting the nature of the original shadow when the excretory urogram gives no evidence of pyelectasis or stasis. This may occur if stones are of large size and of long standing. If the shadow is small, it may be in line with the pelvis but may not be visible within the pelvic shadow. In such cases it is well to repeat the films at different angles and with a lateral exposure. In some cases, pyeloscopy may be of value. As a rule, however, difference in the degree of visualization of the two pelves, with evidence of renal stasis in the affected kidney, difference in time of appearance and disappearance of visualization, and pyelectasis or ureterectasis on the affected side will give

Uroselectanis, Klin. Wchnschr. 8: 2089-2091 (Nov.) 1929.

the necessary diagnostic data. It is surprising, in the course of routine excretory urography in cases of lithiasis, how often some evidence of disease is found in the other kidney. Minor degrees of pyelectasis or ureterectasis frequently are visualized as a result either of a previously existing stone or of infection.

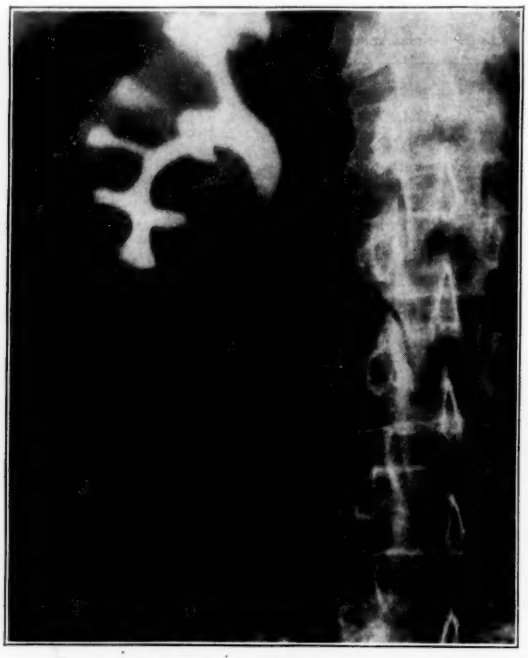

Fig. 2.—Excretory urogram showing deformity accompanying polycystic kidney.

ABDOMINAL TUMOR

Among the problems in diagnosis most commonly observed in general practice is the identification of a tumor palpated in the upper lateral part of the abdomen. In the absence of other diagnostic data it may be impossible to identify the tumor by the methods usually employed in physical diagnosis. The excretory urogram often will give sufficient data either to identify it as renal or to exclude the possibility of its being renal. Visualization of filling defects in the pelvic outline, or of elongation and deformity of involved calices, or failure of visualization on the side of the abdominal tumor is usually sufficient to justify the inference that the tumor is intrarenal. On the other hand, a normal pelvic outline usually will exclude the possibility of the tumor being renal. It should be emphasized, however, that, if the details of the calices are not clearly visualized, exact interpretation is impossible and cystoscopic data, together with a retrograde urogram, are necessary. Error in the diagnosis of renal tumor is easily made by trying to interpret an excretory urogram in which the details of the calices are inadequately visualized. In cases of doubt, a retrograde urogram should always be made.

Excretory urography, when feasible, is distinctly preferable to retrograde urography in the diagnosis of polycystic kidney (fig. 2), because it obviates the danger of infection secondary to ureteral catheterization or retrograde urography. Although deformity suggestive of polycystic kidney is often clearly visualized in the excretory urogram, in many cases the visualization is inadequate for interpretation, either because of abnormal excretion or because of subnormal renal function. It has been my experience that, when the concentration of urea is more than 50 or 60 mg. in each 100 cc. of blood, visualization is unsatisfactory.

RENAL TUBERCULOSIS

The question often arises, How far can physicians rely on the evidence given by excretory urography in the diagnosis and localization of renal tuberculosis? As a rule, renal tuberculosis will cause some degree of deformity in the excretory urogram. Although the abnormality may not be typical of renal tuberculosis, nevertheless, with the aid of other evidence such as the presence of acid-fast bacilli in the catheterized urine, a diagnosis frequently can be established. When any of the following signs are observed in the excretory urogram, namely, absence of or marked delay in visualization (fig. 3), irregular pyelectasis or ureterectasis, failure of visualization of one or more calices, with irregularity of the pelves, or definite necrosis on one side and a normal pelvis and ureter on the other, the diagnosis of renal tuberculosis often can be inferred. Often, subsequently, a retrograde urogram will give visualization of doubtful deformity much more clearly or will disclose deformity otherwise not seen. The question may be raised whether the particulars derived from an excretory urogram alone would be sufficient to warrant removal of the kidney involved without cystoscopic data. It should be stated that normal visualization on one or both sides would not exclude renal tuberculosis. On several occasions I have been able to find bacilli of tuberculosis and a few pus cells in the catheterized specimen of urine from a kidney which,

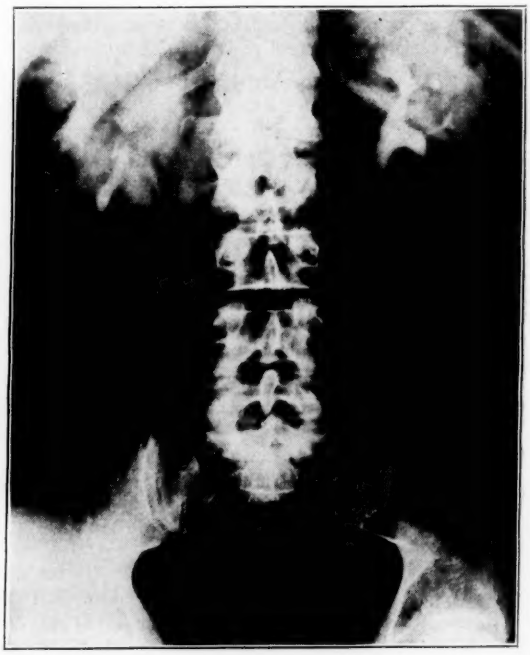

Fig. 3.—Excretory urogram showing right renal tuberculosis. There is a difference in renal visualization; there is a filling defect in the upper calices of the right renal pelvis.

from excretory urographic evidence, would be inferred to be normal. Although it is usually advisable to corroborate the urographic evidence of a normal kidney on the opposite side by means of ureteral catheterization, nevertheless if for any reason cystoscopy would be difficult or impossible, a physician could, with a relative degree of assurance, advise removal of the kidney involved.

The possibility of error in inferring from an excretory urogram that a kidney is normal is illustrated by a case in which the patient presented himself because of indefinite backache, with no symptoms suggestive of disease of the urinary tract. A few pus cells were found in the urine and, when the sediment was stained,

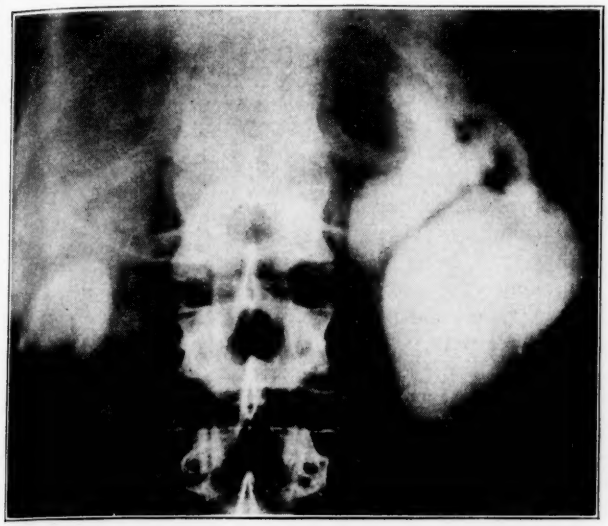

Fig. 4.—Excretory urogram showing complete duplication of left renal pelvis, with pyelectasis in both pelves, more marked in the lower.

acid-fast bacilli or other bacteria were not seen. The general examination, including roentgenograms of the urinary tract and tests of renal function, was negative. An excretory urogram gave an average visualization of both pelves, calices and ureters, which were interpreted as being normal. A diagnosis was made that the upper part of the urinary tract was normal. On subsequent examination a cystoscopic examination was made because of the persistence of a moderate amount of pus in the urine. In the catheterized specimen from the right kidney, a few pus cells were present and the stained sediment revealed a few acid-fast bacilli. It is evident, therefore, that the patient was suffering from tuberculosis of the right kidney, which would have escaped detection if excretory urography had been depended on for diagnosis.

MISCELLANEOUS

Among other conditions in which excretory urography is of diagnostic value should be mentioned the complications of pregnancy.[4] Various observers have employed this method as a routine without apparent injury to the patient and have been able to find evidence of secondary lesions in the urinary tract in a surprisingly high percentage of cases. Excretory urography is often disappointing in the diagnosis of pyelonephritis, since the deformity of the renal pelvis accompanying pyelonephritis may be so insignificant that it will not be adequately visualized. In many cases, however, as a result of atony or of secondary obstruction, ureterectasis or pyelectasis will be visualized. Minor changes in the outline of the calices resulting from a previous infection now dormant are often observed in routine urography. With chronic unilateral pyelonephritis, however, the resulting deformity is often marked. It may be recognized by unilateral deformity, such as incomplete visualization or cicatricial deformity of the pelvis with absence of one or more calices. With atrophic pyelonephritis the outline of the pelvis and calices is in keeping with the degree of renal atrophy, although minor pyelectasis may also be present. The existence of anomaly of the upper part of the urinary tract, such as renal fusion, duplication of the pelvis (fig. 4) and ureter, renal dystopia, incomplete rotation and agenesia, will undoubtedly be discovered much more often than formerly. Since such anomaly is often complicated by some secondary lesion, the practical importance of preoperative visualization is self evident.[5] Excretory urography should be employed as a routine in cases in which injury to the urinary tract is suspected. Although reflex inhibition of excretion following severe injury may interfere with interpretation, nevertheless the character and extent of rupture of the kidney may often be visible in the urogram. Rupture of the bladder may also be determined by the method better than in any other way and without the dangers of secondary infection.

RENAL LESIONS COMPLICATING VESICAL DISEASE

When lesions such as neoplasm, diverticulum, stone or prostatic abnormality involve the bladder, secondary complications often occur in the kidney and ureter and may be determined only by means of excretory urography. In fact, its employment as a routine is advisable in all surgical lesions involving the bladder and urethra, even though symptoms suggesting involvement of the upper part of the urinary tract may not be present. Unilateral absence or reduction of renal function, pyelectasis and ureterectasis are often found when

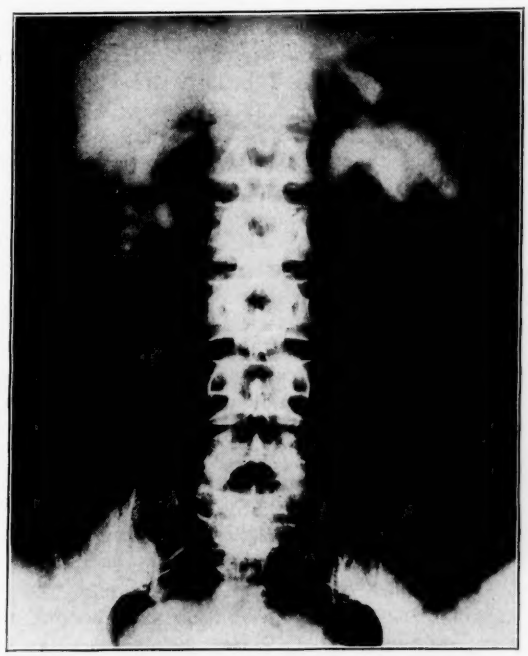

Fig. 5.—Excretory urograms showing stone in left ureter; there is evidence of pyelectasis and renal stasis.

least suspected. Should a vesical neoplasm surround a ureteral orifice, it is of primary importance to determine, before operation, the condition of the ureter and kidney involved. When cystectomy and reimplantation of the ureter are contemplated, the value of preliminary visualization of the ureter and renal pelvis is self evident.

4. Lee, H. P., and Mengert, W. F.: Effects of Pregnancy on the Urinary Tract, to be published.

5. McKenna, C. M.: Traumatic Lesions of the Urogenital Tract, J. Urol. **27**: 95-101 (Jan.) 1932.

EXCRETORY URETEROGRAM

Visualization of the ureter in the excretory urogram is often disappointing. Although the normal ureter usually is not visualized in its entirety, it occasionally will be outlined completely. As a rule, visualization of the ureter is fragmentary, varying with the amount of iodized urine contained, and with systole and diastole. More commonly, the upper third of the ureter only is visualized, although in subsequent films the other portions of the ureter, particularly the lower third, can be seen. For this reason it is often necessary to assemble the data from several films in order to obtain an adequate idea of the ureteral outline.

Attempts have been made to visualize accurately the ureter by various methods. Compression bags placed over the lower part of the ureter a few minutes prior to exposure have often proved to be of some assistance. It is advisable to have the patient placed first in the Trendelenburg position and later, in order to visualize the lower part of the ureter, to have him sit up with the legs flat on the table for five or ten minutes prior to the second or last film. In the later films the lower end of the ureter is sometimes visualized, apparently because of stasis resulting from filling of the bladder. It is surprising how often marked ureterectasis can be overlooked entirely in the excretory ureterogram, and it may be necessary to resort to retrograde ureterography with the aid of multiple or bulb catheters.

Excretory urography is frequently disappointing in the identification of suspected shadows in the area of the ureter (fig. 5). Unless there are actual obstruction and retention of urine in the ureter at the time of exposure there may be no evidence of ureterectasis and even complete failure of visualization of the ureteral outline. When the shadow is in the lower end of the ureter, the bladder should be emptied before the last films are taken; otherwise the vesical outline will completely overshadow the outline of the adjacent ureter.

Excretory urography should be of great value in determining the existence of actual stricture of the ureter, which a few years ago was thought to be of such frequent occurrence. Excretory urography will visualize ureterectasis, which must be present if actual stricture is present. There may be some difficulty in distinguishing between atonic and obstructive dilatation, but as a rule the localized area of constriction, with ureterectasis immediately above it, will identify actual obstruction. If an excretory urogram was made as a routine in cases in which stricture of the ureter was suspected, only few patients would be subjected to ureteral dilation by the conscientious urologist.

Similarly, many so-called kinks in the ureter, which formerly have been given a far more important place by urologists than they merited, have disappeared in repeated excretory urograms. It is evident that such angulations were often caused by spasm secondary to irritation by a catheter. Other apparent kinks exist temporarily as the result of postural, respiratory or other physiologic and anatomic conditions. When ureteral angulation persists in the excretory urogram and in spite of postural change and is accompanied by urographic evidence of stasis, it may be regarded as of pathologic significance. It is of interest that ureteral spasm at the ureteropelvic juncture which often accompanies renal stone will many times be visible in the excretory urogram.

The excretory ureterogram may also be of great value in determining the postoperative condition of the ureter. It offers a simple method of determining the existence of injury to the ureter after operations on the female pelvic organs. It may be the only method of ascertaining the functional results or complications following transplantation of the ureters into the sigmoid.

EXCRETORY CYSTOGRAPHY

The bladder frequently will be visualized coincidentally in the late films made in the course of excretory urography. These data, which are available as a by-product, are frequently of considerable clinical use. A coincident vesical neoplasm, diverticulum or other deformity is often visualized, which might otherwise have been overlooked. Although the bladder is not always completely filled, enough evidence of deformity, when present, is usually seen to permit of diagnosis. With failure of visualization of the upper part of the urinary tract because of intestinal flatus, poor preparation, roentgenologic technic or physiologic or anatomic circumstances, the presence of the excreted medium in the bladder may be the only evidence available of adequate renal function. The excretory urogram may also be of value in making an approximate estimate of the amount of residual urine in the bladder, when it is impossible or inadvisable to employ a urethral catheter.

SUMMARY AND CONCLUSIONS

Although the foregoing data are so condensed that they constitute but a summary of the information available by means of excretory urography, nevertheless the following may be emphasized:

1. Excretory urography should be and will be employed as a routine in the diagnosis of abdominal lesions.
2. Its greatest handicap is interpretation, which will be so standardized as to permit the method to be more generally employed.
3. Its greatest value will be in determining the presence of stasis in the renal pelvis or ureter, aiding in interpretation of shadows in the upper part of the urinary tract, and giving fairly accurate estimates of renal function.
4. Excretory urography will also be used to a less extent in the recognition of renal tumor, tuberculosis and anomaly.
5. It will always be an invaluable aid to the urologist in conditions in which cystoscopy and ureteral catheterization are impossible or inadvisable.
6. It should be of much help in determining the presence or, rather, the absence of stricture of the ureter.
7. It should also be of great help in determining the necessity for the surgical treatment of renal ptosis.
8. The data that it gives should be complementary to other urologic data, and in only a limited field will it entirely replace them.

Possibilities to Unassisted Eyes.—Our final opinion, of course, in any case is based upon a compounding of sense data and an analysis by the mind of all the information we have collected by all the means at our disposal. The more accurately, however, we observe with our special senses, the more judicial will our choice of other methods be and the more accurate the final opinion. Do not think that the few illustrations I have given you are intended to do more than indicate the range of possibilities open to your unassisted eyes, hands, ears and nostrils. Your daily life in clinical medicine will furnish you with others in plenty, some which are old and familiar and others which you will reveal to yourselves.—Ryle, J. A.: The Training and Use of the Senses in Clinical Work, *Guy's Hosp. Gaz.* **47**:421 (Oct. 28) 1933.

EXCRETION UROGRAPHY

WITH PARTICULAR REFERENCE TO A NEWLY DEVELOPED COMPOUND: SODIUM ORTHO-IODOHIPPURATE

MOSES SWICK, M.D.
NEW YORK

This paper embodies the results of endeavors to overcome certain disadvantages that have evidenced themselves since my original contribution [1] to excretion urography with iopax. For example, the volume administered was inconvenient, the dose large, the expense great, and the substance as such not representative of a product of normal metabolism.

The underlying principle of the present investigations concerns itself with the utilization of a normal product of metabolism as an organic nucleus for combination with the radiopaque element necessary for the visualization of the urinary tract. The substance I now propose is sodium ortho-iodohippurate, a halogen derivative of a compound normally found in the human urine.

In order to comprehend clearly the rationale for the development of this substance, the following considerations are worthy of note:

1. It has been known for a long time that the introduction of benzoic acid or its sodium salt into the

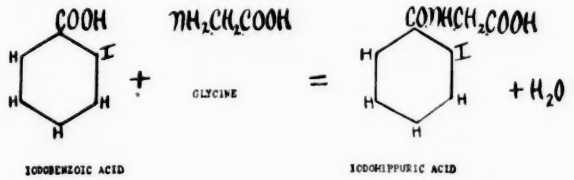

Fig. 1.—Structural formula for iodohippuric acid.

animal organism results in its conjugation with glycine and in the excretion of the corresponding hippuric acid derivative. Similarly, it has been demonstrated that iodohippuric acid is excreted into the urine of the dog and the rabbit after the administration of iodobenzoic acid.

2. Animal experimentation has shown that the elimination of hippuric acid after benzoic acid administration represents the end-result of processes of detoxification.

3. As an organic parent-substance for combination with iodine or bromine, sodium hippurate appeared suitable, since it is very soluble in water, is neutral in solution, is a normal metabolite and product of detoxification, is well tolerated, and is quantitatively excreted in the urine of the rabbit.

In the light of these observations it was felt that sodium ortho-iodohippurate should meet the necessary requisites for excretion urography.

On the basis of its use in more than 200 cases, I have found the substance to be nontoxic, highly soluble and neutral in solution, and to yield satisfactory urograms. It possesses 38.8 per cent of iodine in stable organic union. Iodism has never been observed. Generalized warmth and occasionally nausea and vomiting of very transient duration have been the only reactions noted. Thrombosis at the site of injection has not been observed. The compound is well tolerated and may be recovered from the urine as the insoluble acid. Rabbits were found to tolerate from 2 to 2.5 Gm. of substance per kilogram of body weight, administered, intravenously in approximately 30 per cent concentration over a period of about ten minutes. Normally, from 90 to 95 per cent is excreted within eight hours after injection, from 60 to 66 per cent during the first hour, and from 70 to 80 per cent during the first two hours. A solution of this substance remains unchanged in color or reaction after sterilization or on standing and may be prepared and distributed in sterile vials ready for use.

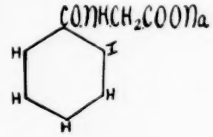

Fig. 2.—Structural formula for sodium ortho-iodohippurate.

DOSAGE AND TECHNIC

For adults, a dose between 10 and 15 Gm. of substance dissolved in distilled water in approximately 50 per cent concentration has been used. The injection should take about five minutes, the first exposure made about ten minutes later and two subsequent ones at twenty minute intervals. In cases of functional derangements, particularly in the presence of obstructive conditions, additional films are indicated to determine definitely the absence of visualization or the presence of late visualization. Children under 13 years of age have received 10 Gm. doses without ill effects; occasionally the injection in the latter is associated with transitory nausea and vomiting.

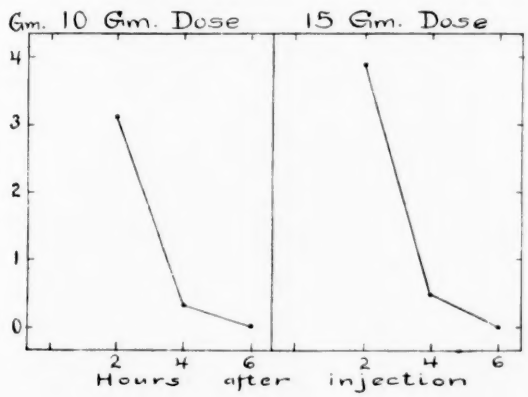

Fig. 3.—Curves of excretion:

10 Gm. Dose			15 Gm. Dose		
Hours	Iodine	Volume	Hours	Iodine	Volume
2	3.130 Gm.	302 cc.	2	3.857 Gm.	160 cc.
4	0.340 Gm.	280 cc.	4	0.551 Gm.	595 cc.
6	0.099 Gm.	210 cc.	6	0.170 Gm.	805 cc.

The oral administration in man has also yielded satisfactory results. Of twenty-five cases, approximately 50 per cent showed good diagnostic urograms from ninety to 135 minutes after administration. From 10 to 15 Gm. of the substance dissolved in approximately 75 cc. of simple syrup was given by mouth. No reac-

This work was carried out with the aid of a grant from the Emanuel Libman Fellowship Fund.

Read before the Section on Urology at the Eighty-Fourth Annual Session of the American Medical Association, Milwaukee, June 14, 1933.

From the Surgical Service of Dr. Edwin Beer, the Department of Roentgenology and the Division of Laboratories, the Mount Sinai Hospital.

1. Swick, Moses: Verhandl. d. deutsch. Gesellsch. f. Urol., IX Kongress, Munich **9**: 328-331, 1929; Klin. Wchnschr. **8**: 2087-2089 (Nov. 5) 1929; Intravenous Urography by Means of the Sodium Salt of 5-Iodo-2-Pyridon-N-Acetic Acid, J. A. M. A. **95**: 1403-1409 (Nov. 8) 1930; Am. J. Surg. **8**: 405-414 (Feb.) 1930; Oxford Loose Leaf Surgery **3**: 188-3A-48A; Surg., Gynec. & Obst. **56**: 62-65 (Jan.) 1933.

ureter. It offers a simple method of determining the

Gaz. 47:421 (Oct. 28) 1933.

tions were ever noted. The only subjective sensation recorded is the salty aromatic taste of the solution. Forty-five minutes after the intake of the solution, the patient is placed on the x-ray table, a moderate degree of compression is applied, and exposures are made sixty, ninety, 120 and 150 minutes after the ingestion of the substance. Further investigations with the oral

Fig. 4.—Intravenous urogram: Bilateral renal calculi with very little effect on the pelves and calices. The left pelvis and calices are larger than those on the right side.

administration are in progress. At the present time it is my opinion that the results by the oral route will not be as consistently good as those given intravenously.

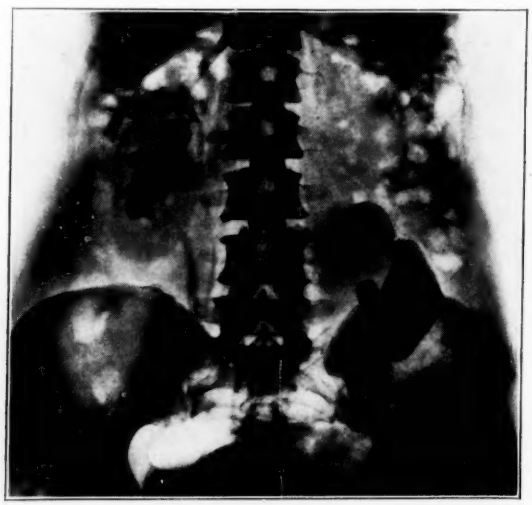

Fig. 5.—Intravenous urogram: Left hydronephrotic dystopic nonrotated kidney with calculus in its lower pole; right double pelvis, double ureter with dilatation of the lower half. The chief complaint was a tender mass to the left of the umbilicus and hematuria.

PREPARATION OF THE PATIENT

The patient is prepared as for any roentgen urinary examination: castor oil the night before, no fluids during the night, and nothing by mouth in the morning.

IMPORTANCE OF COMPRESSION

Of importance in obtaining clearly defined and readable excretory urograms is the application of a moderate degree of compression over the region of the urinary bladder by means of an air-inflated balloon held in place by the canvas sheet of the compressing apparatus. The balloon is applied in the midline, just above the symphysis pubis, immediately after the completion of the injection, and is maintained without disturbance for the entire period of the three exposures. It is felt that an artificial dilation of the urinary tract with the aid of compression is not produced when normal tonic conditions prevail.

Further studies with related substances and with the administration of the mono-iodobenzoate and diiodobenzoate of sodium in conjunction with glycine by the intravenous and oral routes are being continued.

GENERAL CONSIDERATIONS

Excretion urography should be viewed only as one of the aids in urologic diagnosis and as such not without its limitations. This method cannot entirely supplant cystoscopy or retrograde pyelography, and it must be considered in conjunction with other means of inves-

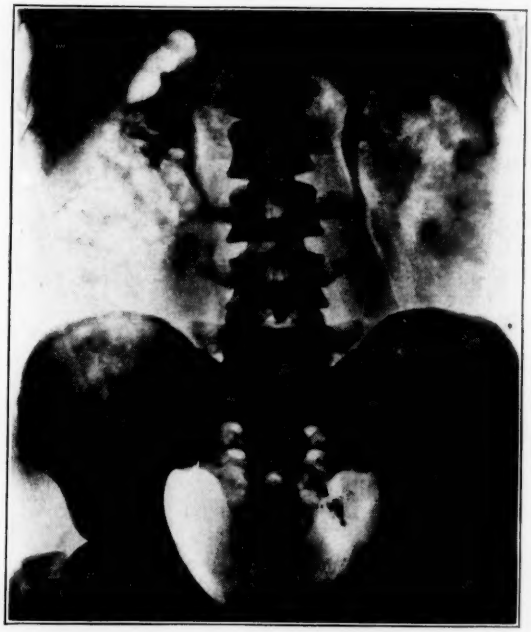

Fig. 6.—Oral urogram showing normal urinary tracts. Iodized poppy-seed oil seen in the bony pelvis is the result of injection of a fistulous tract.

tigation in each individual case. When doubt exists, cystoscopy and retrograde pyelography should be employed. The latter procedures too, despite their years of existence, are not always fool proof. The following example is illustrative:

A patient with a history of bilateral renal pain associated with hematuria was found, on cystoscopy, to have good indigo carmine excretion from both sides, 20 cc. retention in the left kidney pelvis, but none in the right, as determined by aspiration through the catheter, which was thought to be in the pelvis. Accordingly, a left retrograde pyelogram—the side with retention—was made, abnormality of the right urinary tract not being expected. But the intravenous urogram visualized a hydronephrosis of the right renal pelvis; the slight dilatation of the left renal pelvis, resembling that seen by the retrograde route, was found to be incidental to a stone in its lower ureter.

Because the mechanism of this type of urographic visualization is based on excretion, one should think in terms of renal function as it pertains to this method.

From studies of excretion, it is observed that the normally functioning kidney possesses the ability to excrete urographic substances in high concentration within a short period. This may be characterized as the thrust-excretion ability of the normally functioning kidney. It is obvious that, in the case of a poorly or nonfunctioning kidney, when the concentrating power is impaired, poor or no visualization will be found, since a certain concentration of the radiopaque element is necessary for roentgenologic visualization. Broadly speaking, then, it may be stated that visualization, poor visualization or no visualization is dependent on renal and extrarenal factors. When, however, the additional mechanism of obstruction is present (reservoir mechanism), visualization may be had, although the height of excretion requisite under normal circumstances is absent, provided excretion takes place. Thus, in some cases of hydronephrosis, despite the presence of comparatively little intact renal tissue, good visualization may still be encountered. This brings up an important consideration; namely, in cases of hydronephrosis, the presence of functioning renal tissue, as evidenced by the radiologic observations, is no quantitative criterion nor one for determining the type of therapeutic procedure. The latter will depend on the individual case and the pathologic anatomic status, as well as on the particular approach of the physician or surgeon to the case in question.

Further, it is important to point out that the functional activity of the kidney may be temporarily inhibited and that the mere nonvisualization of the urinary tract at a given examination does not necessarily signify permanent renal damage.

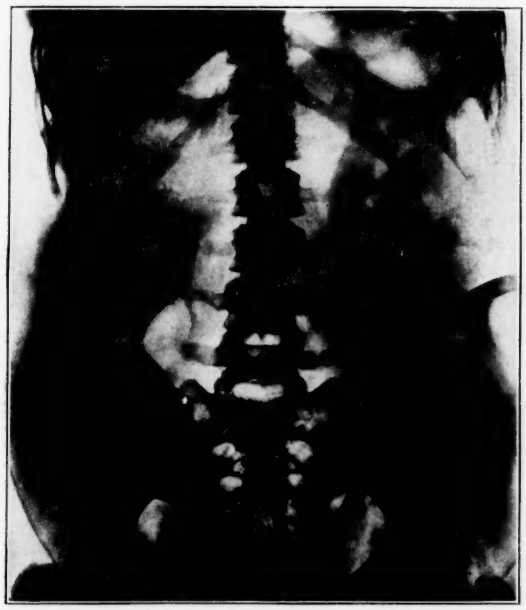

Fig. 7.—Oral urogram in a patient with congenital solitary left kidney, complicated originally by a ureteral stone, who was operated on; the operation followed by a stricture and ulceration of the ureter by a recurrent stone. Finally a permanent lumbar ureterostomy was performed. The urogram shows dilatation of the calices, pelvis and upper ureteral stump. A calculus is seen situated in the region of that stump.

On the other hand, it should also be stressed that the mere nonvisualization of the upper urinary tract, incidental to the functional-anatomic derangement of the kidney parenchyma, may in itself be of great assistance as a means of localization of the disease, and in diagnosis when considered together with other clinical data. Cases of calculous pyonephrosis, tuberculous pyonephrosis, infected hydronephrosis and tumors of the kidney have been so diagnosed with great regularity when viewed clinically in their entirety. In addition, one gains an insight into the functional and anatomic status of the contralateral side, so essential in the evaluation of the individual as an operative risk.

Fig. 8.—Trapped right hydronephrotic kidney due to aberrant vessels at the ureteropelvic junction. Ureter not visualized. Cystoscopic examination failed to detect this abnormality. The left urinary tract is somewhat dilated as a result of a ureteral stone overlying the sacrum.

In passing, attention should be called to instances of failure of visualization or poor visualization in the presence of good renal function, as determined by indigo carmine excretion; these cases are difficult to explain.

In the various aspects pertaining to the question of renal function and roentgenologic visualization, it should be emphasized that this method is excretory in nature and that one should therefore constantly bear in mind the processes taking place in both the renal and extrarenal systems.

A familiarity with the indications and contraindications for excretion urography possessed by most medical men makes it unnecessary to deal with these aspects.

CONCLUSIONS

Excretion urography has been found useful in many of the cases in which retrograde pyelography was in general indicated and in which the latter, in the presence of mechanical difficulties or infections, could not be executed; and, vice versa, retrograde pyelography is considered essential in corroborating or supplementing when the results with excretion urography are equivocal.

133 East Fifty-Eighth Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. BRAASCH AND SWICK

DR. IRA R. SISK, Madison, Wis.: I agree with Dr. Braasch's general statement regarding the application of this method in general diagnosis. That its greatest field of usefulness is in the diagnosis of obstructive lesions and stones cannot be denied. As he said, many cases of tuberculosis and of polycystic kidney can be recognized by this method alone. It has been my observation

that the greatest source of error is from reading into the film more than can really be seen; also from attempting diagnosis from excretory urography alone when there is pus in the urine and inflammatory disease somewhere in the urinary tract for which cystoscopy should also be used. Another source of error is in the cases of hematuria when normal kidney pelves and ureters are found but lesions exist elsewhere in the urinary tract. Dr. Braasch did not mention this method of diagnosis in children. In the clinic with which I am connected we use intravenous urography in a larger percentage of children than of adults. It is quite reliable in the diagnosis of tumors of the kidney in children and in determining the presence of anomalies or other conditions that may impede the progress in the ordinary pyelitis of childhood. Dr. Braasch did not have time to read one portion of his paper which dealt with genito-urinary surgery. In determining the results in conservative operations on the renal pelvis and following transplantation of the ureters to the sigmoid, it is invaluable. Also much valuable information may be obtained from the procedure when used before the second ureter is transplanted regarding the function and the drainage on the side on which the operation has already been performed. Dr. Swick's contribution is valuable. The advantage of a substance which, after oral administration, will give the pictures he has demonstrated is too evident to need discussion. Although he states that it is successful in only about 50 per cent of cases, he will with further work, I am sure, be able to develop the substance to a point at which it will be as valuable as intravenous urography is today.

DR. L. T. LE WALD, New York: Dr. Braasch and Dr. Swick have added a great deal to the subject of excretion urography, a method which has now passed the experimental stage and points the way to a brilliant future not only in urologic work but also in general medicine. The surface apparently has only been scratched in regard to the use by the internist of this method of estimating kidney function and diagnosis of renal disease. I have been somewhat disappointed by the apparent lack of interest on the part of the internist in the use of this method of diagnosis in connection with the diagnosis of nephritis. I trust that Dr. Swick's latest efforts to render the method applicable to office practice by means of the oral administration of sodium iodohippurate will stimulate internists and

Fig. 9.—Intravenous urogram in a 6 year old child admitted for pyuria, showing a dilated right urinary tract with angulation of the ureter. The left kidney shows filling of three dilated calices. Its ureter is not visualized. See figure 10.

roentgenologists to greater effort in this respect. From my former experience as a pathologist it would seem possible not only to differentiate certain anomalies of the kidney, such as absence of one kidney or the presence of a horseshoe kidney or a double ureter, but also to determine the size of each kidney and differentiate such conditions as chronic interstitial nephritis (small granular kidney). In cardiovascular disease it should also be possible to study the size and function of the kidneys (arteriosclerotic kidney). I do not know of any series of cases studied from this standpoint but hope to be able to carry out such a series in the near future. Dr. Swick's statement that sodium iodohippurate may be safely used in children would make it possible to carry out a series of observations in connection with my service as roentgenologist at Willard Parker Hospital in a series of postscarlatinal cases, in an effort to

Fig. 10.—Later exposure of case shown in figure 9, showing the complete filling of the left infected hydronephrotic kidney. These two illustrations demonstrate the comparatively good visualization that may be encountered in some cases of hydronephrosis despite the mere presence of comparatively little intact renal tissue. Therefore, in cases of hydronephrosis, the presence of functioning renal tissue, as evidenced by the radiologic changes, is no quantitative criterion nor one for determining the type of therapeutic procedure.

determine the effect of the disease on the kidneys. It would also appear possible to test out various diuretics taken in conjunction with excretion urography.

DR. THOMAS D. MOORE, Memphis, Tenn.: Dr. Braasch mentioned the difficulty of interpreting urograms that lack definition. Three simple measures have been found worth while as a means of improving density and detail: 1. If the examination is to be made in the morning, a preliminary laxative is given the evening before. 2. A state of partial dehydration is induced by withholding fluids during the twelve hour period. 3. The use of localized compression immediately above the symphysis pubis by placing a small rubber ball beneath the compression binder has been found more effective than the large inflatable bag commonly used for the purpose. The small ball is removed during the actual exposure of the films, permitting the lower ureters to fill and eliminating the shadow of the ball.

DR. W. F. BRAASCH, Rochester, Minn.: To return to the subject of terminology, it should be stated that the term "excretion urography" cannot be used, since excretion is a noun. Therefore, the term "excretory urography" will most accurately describe the procedure and will probably be permanent. The term intravenous urography probably will soon disappear entirely, since the substance for oral administration which Dr. Swick has recently discovered will doubtless supplant present methods of intravenous injection. Excretory cystography may be of value in calling attention to diverticula of the bladder or some other deformity in the vesical outline that might not be suggested by the clinical data at hand. It should be studied as a routine in every excretory urogram. If it is inadvisable to catheterize a patient, excretory urography may be used to demonstrate the presence of residual urine.

DR. MOSES SWICK, New York: A case that demonstrated discrepancies between urographic observations and the real clinical condition recently came under my observation. The patient was a female in whom cystoscopy showed normal ureters. Catheters were passed up both sides and no obstruction

was encountered. A pyelogram showed no cupping. Several days later, cystoscopy was performed again and a normal pyelogram was made, but it this time it showed dilatation and clubbing of the calices on one side. A few days later cystoscopy was done and this time the pyelogram showed clubbing on both sides. Two years later the patient showed eyeground changes and evidences of uremia. In other words, this patient had from the beginning a pyelonephritis, which was not recognizable by the investigations made, and the disease went on to the stage of typical contracted kidney.

INTERPRETATION OF CHEST ROENTGENOGRAMS

KENNON DUNHAM, M.D.
CINCINNATI

For more than twenty years the laboratory with which I am associated (as many other laboratories) has studied necropsy material to determine the relation between x-ray densities and pathologic observations. It is my opinion that the relative degrees of scar tissue and pulmonary exudate can be determined from a study of x-ray films with sufficient accuracy to be of great practical value in the diagnosis, prognosis and treatment of pulmonary tuberculosis.

Pulmonary tuberculosis can be understood more easily if the various lesions are regarded as the products of inflammation and if it is remembered that tuberculous infection varies from marked chronicity to

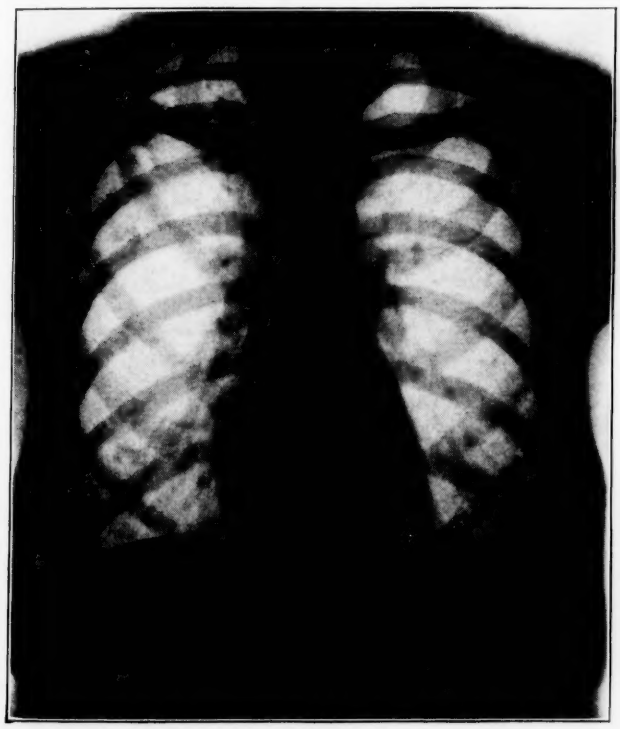

Fig. 1.—Fan (below clavicle) illustrating lobular pneumonia found in adult apical tuberculosis. Stereoscopically this is seen coming to the back and not to the anterior part of the chest.

severe activity. Thus, the densities as shown on the x-ray film reveal lesions that vary from dense scar tissue (proliferative type) to extensive pulmonary exudate (exudative type).

From the Department of Tuberculosis, University of Cincinnati College of Medicine.

Read before the Section on Radiology at the Eighty-Fourth Annual Session of the American Medical Association, Milwaukee, June 14, 1933.

The study of a case of pulmonary tuberculosis necessitates determining not only the extent and location of the lesions but also the relative amounts of scar tissue (repair, suggesting resistance) and of the pulmonary exudate (acute inflammation). Great consideration must be given, not only as to whether a cavity has formed, but also as to whether an abscess, which causes

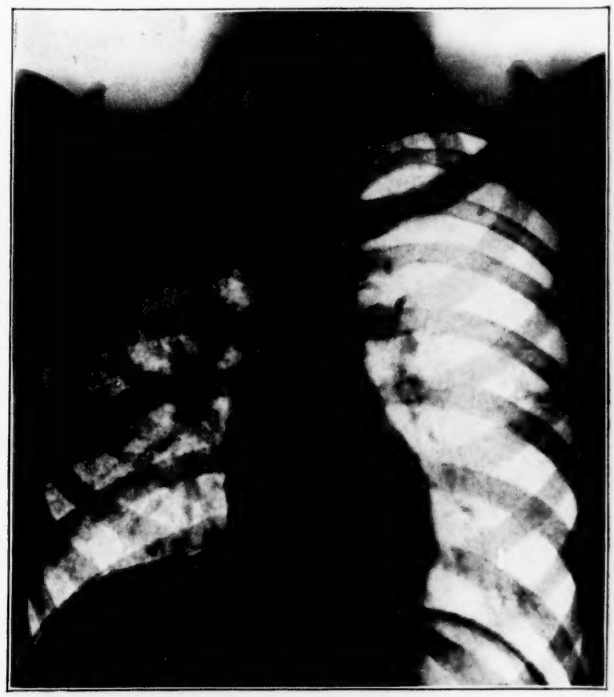

Fig. 2.—Exudative or pneumonic type tuberculosis, due to pulmonary exudate, in upper right lobe. Very virulent inflammation. Cavity breaking down. Lower lobe and part of upper lobe illustrates caseous bronchopneumonia due to aspiration. Bronchogenic spread.

a cavity, will probably develop. Inflammation, with repair or degeneration, due to tuberculous infection, exists just as it does following other infections. Thus, pulmonary tuberculosis may manifest itself as lobar pneumonia, lobular pneumonia or bronchopneumonia. Such lesions occur in patients who have had sufficient previous tuberculous infection to produce a state of allergy in the individual. Miliary tuberculosis as described in textbooks, not the miliary tuberculosis of Laënnec, probably develops when allergy does not exist or when it is not sufficiently active to permit the tubercle bacillus to cause an inflammatory reaction and produce exudate. But this is another story.

Adult apical and subapical tuberculosis, also called nodose and fibroid tuberculosis, starts as a lobular pneumonia and, as Birch-Hirschfeld showed in 1898, most commonly develops in the posterior apical bronchus. This should not be described as below the clavicle, because that indicates the anterior part of the chest. This type of lesion has been described as the fan, because it was first visualized as such on the x-ray plate. It is a localized area of pulmonary inflammation with pulmonary exudate, which may repair or break down (a lobular pneumonia). At a later date other similar lesions may develop, and then there are two or more areas of lobular pneumonia in different inflammatory stages. These show different densities on the x-ray film. To differentiate these densities and to determine the extent and degree of repair or degeneration of the lesions necessitates excellent stereoscopic films.

Caseous bronchopneumonia usually follows when the lobular pneumonias break down and liberate nascent tubercle bacilli. This is often spoken of as the bronchogenic spread and is due to the aspiration of infectious droplets into good lung tissue. It commonly follows a hemorrhage when the sputum is positive. This lesion is portrayed on the x-ray plate as fine, coarse, or flocculent mottling (indicating varying degrees of the viciousness of the infection) associated with extensive and usually old lesions in the upper lobes.

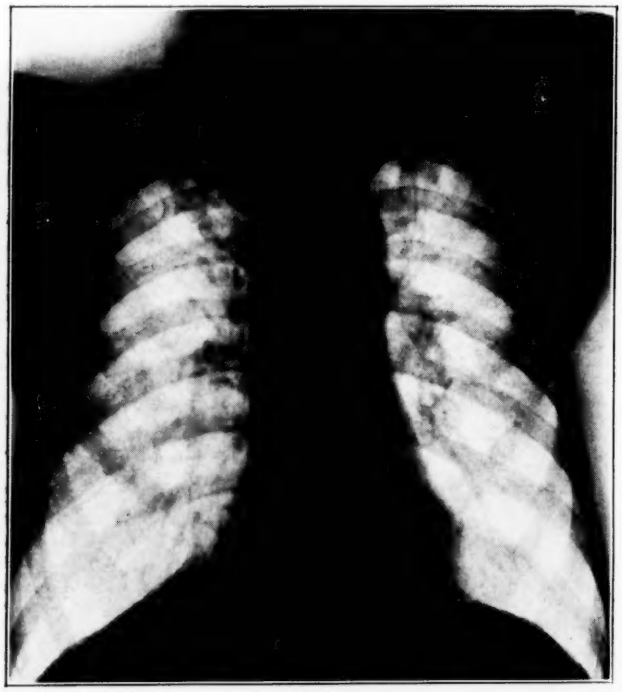

Fig. 3.—Fibroid tuberculosis—the proliferative type due to connective tissue in lobe; illustrates great chronicity.

Tuberculous lobar pneumonia is not as prevalent as tuberculous lobular pneumonia but is a common lesion. It has been written of as basal tuberculosis and I have written of it as basal tuberculosis but have been sufficiently Irish to describe basal tuberculosis in an upper lobe. It is more common in Negroes and children than in white adults. It is a very vicious tuberculous inflammation and few survive it. It usually cavitates, and the lung should be collapsed as soon as the diagnosis is confirmed by the presence of positive sputum. The entire lobe is seldom involved at the start but it has a nasty way of spreading even before positive sputum is obtained. Frequently, exudate will absorb in one part of the lobe and a cavity form in another part of the same lobe.

Two types of x-ray densities in tuberculous pneumonia are to be noted. One patient will have the even density of a heavy pneumonia and another the mottling of bronchopneumonia. These cases showing the mottling of bronchopneumonia do not have the upper lobe lesion from which to aspirate infectious droplets. Positive sputum is found comparatively late in either tuberculous pneumonia or the basal type of tuberculosis simulating bronchopneumonia. The x-ray density is not characteristic as it is in the fan type. A diagnosis may be suspected but not made from the films alone. Malignancy as well as any pulmonary exudate may simulate the densities of tuberculous lobar pneumonia (basal tuberculosis).

The difference between lobular tuberculosis and tuberculous lobar pneumonia is probably due only to the severity of the infection. The virulence of the germ, the size and frequency of the dose and the resistance of the body each plays its unknown part.

Lobular tuberculosis, a localized inflammation, more frequently repairs and lays down scar tissue and is often spoken of as fibroid tuberculosis. Thus it is all important to distinguish between scar tissue and pulmonary exudate. If the exudate is spreading, one may expect that an abscess will develop and a cavity form. If the exudate is not spreading, one may expect that scar tissue is being laid down and that absorption is taking place. This is determined by a series of films taken over a few months and answers the question as to whether pneumothorax or other collapse therapy is indicated.

Pulmonary exudate, due to whatever cause, requires rest in bed until quiescent, and medical supervision much longer. To determine the degree of pulmonary exudate and fibrosis, the best x-ray plates are not good enough. Stereoscopic plates are a necessity. There has been much discussion as to which are the best exposures for x-ray chest films. I would answer that question by saying that the best exposure is that which will show best and most accurately the anatomy of the lung, without contrast mediums. The film that will show the trachea, the right and left bronchus, the pulmonary arteries and the trunks to the five lobes will do, and such an exposure will not destroy the picture of the fine exudate for which one is looking. It will prevent mistaking exudate for scar tissue (fibrosis).

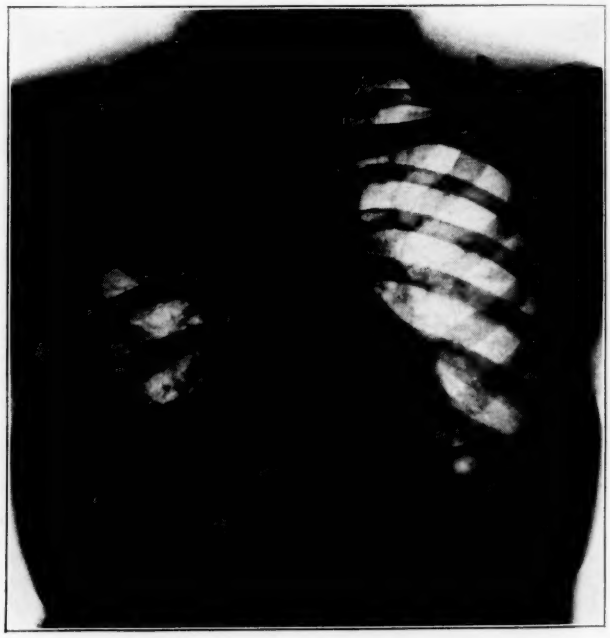

Fig. 4.—Tuberculous pneumonia in upper right lobe. Sputum is positive. This the author sometimes refers to as basal tuberculosis in an upper lobe. Such cases will break down very soon after this condition develops. Abscesses are forming and a cavity must follow.

When exudate is absorbing and scar tissue is developing, the patient is improving; and it is all important that the proper deduction be made. The care of the patient depends on it.

The only treatment of tuberculosis is to assist repair and prevent degeneration as far as is possible.

ABSTRACT OF DISCUSSION

DR. HENRY K. PANCOAST, Philadelphia: Dr. Dunham was, I believe, the first in this country to teach roentgenologists how to diagnose pulmonary tuberculosis correctly, and that was because he taught that it must be diagnosed on the basis of the actual pathologic process that is present. What he has shown is an interpretation of pathologic processes that are present. It is surprising in how many instances this teaching has not been realized, and in how many instances those who are attempting to diagnose tuberculosis do not realize that there are definite criteria for correct interpretation: (1) a knowledge of the anatomy of the lung, (2) a knowledge of the appearance of the lung in the roentgenogram within normal limits, (3) a knowledge of the pathology of tuberculosis, (4) how that pathologic condition appears in the roentgenogram, and (5) the

Fig. 5.—Basal tuberculosis in a Negro, with positive sputum. This is the bronchial pneumonic variety, in contrast to the homogeneous density of the pneumonic type. Such a film might be produced by carcinoma. Tuberculosis should never be read from the film alone in such a case.

correct technic of the examination. Every one of those factors is absolutely essential to a correct diagnosis. One must show the shadows that are the most difficult to bring out, those of the exudate. One must have stereoscopic films, at least to make the original diagnosis, because the single film contains the shadows of all structures all the way through the chest, cast in one flat plane. Those lesions or structures which are farthest away from the film will be almost invisible in some instances because they are spread out over such a wide film area. The stereoscope brings everything back to the place at which it belongs and shows which structure or which lesion casts the shadows. It is customary to regard lobular pneumonic areas in the apical portion of the upper lobe as tuberculous in origin in practically all instances. Such appearances are not all tuberculosis, however, because other infections may produce the same appearances. They have the same appearance as that of tuberculous exudate, but they disappear in a week or ten days. I never think of making a final diagnosis of pulmonary tuberculosis in many cases seen for the first time when such exudative shadows are found in the upper lobe, but I insist that the patient be examined again in a period of possibly three weeks in order to make certain that the individual does not have some other infection. It is surprising how many times the shadows will disappear.

DR. H. KENNON DUNHAM, Cincinnati: When these fans or lobar pneumonias of different densities appear, showing infections that have occurred at different times and in different stages of repair or degeneration, one is quite safe in making a diagnosis of pulmonary tuberculosis. When a pneumonic-like area of one density appears, one cannot accurately deduce the etiologic factor. I have presented two illustrations of cases coming to autopsy to show the importance of not diagnosing tuberculous pneumonia from one density. By studying these chests over months, one can determine whether pulmonary exudate is extending and therefore that the patient is worse, or whether pulmonary exudate is arrested or is disappearing by absorption, and the patient is better. Putting it in another way, when the x-ray film does not show the pulmonary lesion advancing, the patient is improving; but in the pneumonic type there may be absorption of exudate in one part and a cavity developing in another part of the same lobe; also a lesion on one side may be getting much better and a new and nasty lesion developing on the opposite side. It is all important to study x-ray films to determine the relation between pulmonary exudate and scar tissue development and to realize the terror of these basal (pneumonic) types of tuberculosis, which seldom fully recover. In this way the roentgenologist can best help the clinician by determining the need of additional rest or collapse therapy.

LEUKEMIC RETICULO-ENDOTHELIOSIS (MONOCYTIC LEUKEMIA)

WITH REPORT OF CASES

ALVIN G. FOORD, M.D.
PASADENA, CALIF.
LAWRENCE PARSONS, M.D.
AND
E. M. BUTT, M.D.
LOS ANGELES

More or less generalized involvement of the reticulo-endothelial system is found in various pathologic conditions, which can be fairly well grouped under the following headings:

1. Storage histiocytomatosis — Gaucher's disease, Pick-Niemann disease, xanthomatosis and, sometimes, diabetic lipemia.
2. Granulomatosis—Hodgkin's disease.
3. Hyperplasia—reticulo-endotheliosis.

(*A*) Leukemic reticulo-endotheliosis (monocytic or histiocytic leukemia) with or without blastoma formation.

(*B*) Aleukemic reticulo-endotheliosis with or without blastoma formation—response to infection (?) or true systemic disease (?).

4. Tumors—reticulum cell lymphosarcoma.

The conditions classified under 1, 2 and 4 are fairly well defined, but considerable discussion has arisen concerning reticulo-endotheliosis. The pathologic changes in the cases described are nearly uniformly constant and consist chiefly of a diffuse proliferation primarily of the reticulum cells and sometimes of the endothelial cells in the hematopoietic system, chiefly in the spleen and lymph nodes, and in most of the other viscera. Some investigators, notably Sternberg, maintain that the condition is merely an atypical response to infection. Sternberg considers all acute leukemias in the same category. However, most writers consider the cases with an increased number of cells of the monocytic series associated with diffuse growth of the reticulo-endothelial cells in the tissues as cases of monocytic leukemia, comparable in all respects to the more usual myeloid and lymphatic leukemias. Reschad and

From the Laboratories of the Pasadena Hospital, Pasadena, Calif., and the Los Angeles County General Hospital, Los Angeles.
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Schilling-Torgau [1] reported the first case of this type in 1913, and Rosenthal [2] the first in America in 1921. Dameshek,[3] in his comprehensive review of the subject in 1930, listed eighteen proved cases, and Clough,[4] in 1932, gave a complete summary of twenty-three cases, including one of his own. Gittins and Hawksley,[5] Farrar and Cameron,[6] Rinehart,[7] Rucks and Cunningham,[8] Cooke,[9] Gardner,[10] Sydenstricker and Phinizy [11] and Böhne and Huismans [12] each reported one case, and Osgood and Lyght [13] two cases, checked hematologically and by postmortem histologic studies by Bunting, making a total of thirty-three cases in all. Autopsies were made in twenty-one cases of this group.

Clinically, most of the cases described have run a clinical course similar to other acute leukemias, lasting from two weeks to a few months. Infection of the mouth or throat and spontaneous purpura are the rule, especially late in the disease. Rapidly progressive anemia and moderate fever are practically constant features. Palpable swelling of the spleen, liver and lymph nodes is more often present than not. Examination of the blood as a rule shows a marked or moderate decrease in red cells and hemoglobin, the white cell counts averaging from about 15,000 to 50,000; however, two cases have shown more than 400,000 cells (Swirtschewskaja [14] and Lawrence and his associates [15]). The monocytic cells usually form from about 50 to 75 per cent of the total count, sometimes more. The type cell described by all the authors is seldom a mature monocyte, but usually its immediate precursors, including the most immature cell, or histiocyte (Dameshek [3]). These cells are larger than any normal blood cells, and in moist preparations show marked motility, and in supravital preparations, active ingestion of dye. In preparations stained according to the Wright and Giemsa methods pseudopodia or scalloping of the edges testifies to the motility of the cells. The cytoplasm closely resembles that of a mature monocyte, being blue-gray and of ground-glass appearance, with typical fine monocytic granules which are first seen about the nucleus in the youngest cells. The nucleus is large, oval, indented, bean-shaped or even almost lobed. The chromatin is arranged in a very fine spongelike meshwork which becomes more coarse and skeinlike in more mature cells. Phagocytes containing red cells and cellular fragments have been reported by a few authors, especially Clough.[4] Nearly all authors report that the immature cells are oxidase-negative, although Farley [16] and Lawrence and his co-workers [15] found the cells to be positive.

Post mortem, necrotizing lesions in the mouth or the throat are usually found, and constantly the lymph nodes, spleen and liver are enlarged. Usually the bone marrow is hyperplastic. Evidences of hemorrhages in the skin and serous surfaces are nearly always found. The kidneys are swollen, owing to the growth of reticuloendothelial cells and degenerative tubular changes. Rarely, organizing fibrinous exudate is seen on the pericardium (Gardner [10] and Lawrence and his associates [15]), or even on the pleura (Gardner [10]).

Histologically, the architecture of the lymph nodes and spleen is obliterated by a marked proliferation of reticular cells; periportal growth is seen in the liver, and proliferation of reticular cells is found in the kidneys, the serosal surfaces, and the perivascular stroma of nearly all the organs, especially the suprarenal glands, thymus, pancreas and gastro-intestinal tract. The bone marrow usually shows a diffuse or patchy involvement. Thorough study of the reticulum in between the newly formed cells has not been made in any of the recent leukemic cases in the literature, although in an aleukemic case, Tschistowitsch and Bykowa [17] showed clearly a marked proliferation of a fine meshwork of reticulum, to which the cells were intimately connected. In most cases there was little evidence of proliferation of the endothelium. However, Bock and Wiede [18] described proliferation of the endothelium of the lymph nodes, the splenic sinuses and the Kupffer cells, with transitions from swollen cells to completely loosened leukemic cells. Swirtschewskaja [14] found the same changes in the splenic sinuses.

Myeloid hyperplasia of slight degree, in the spleen especially, has been found in a few cases, including those of Schilling,[1] Vyshegorodtzeff [19] Ugriumow,[20] Fleischmann [21] and Bingel.[22]

Of particular interest is a case reported by Gittins and Hawksley.[5] A child, aged 1 year, showed a typical blood picture and had diffuse reticulosis and bilateral large tumors in the ovaries, each of which weighed 210 Gm., and were composed of cells identical with those in the other tissues. Such a case speaks against the inflammatory infectious origin of monocytic leukemia but simulates more nearly cases of myelogenous leukemia with secondary blastomatous growths, as classically seen in chloroma.

Cases of leukemia showing immature granulocytes and monocytic or monocyte-like cells in the blood stream have always led to confusion in classification and to arguments as to the origin of the monocytes. Anagnostu [23] considered the cells in dispute in his case to be monocytoid promyelocytes (oxidase-negative). Hittmair [24] described a case showing myeloid leukemia on postmortem histologic examination in which 42.8 per

1. Reschad, H., and Schilling-Torgau, V.: Ueber eine neue Leukämie durch echte Übergangsformen (Splenozytenleukämie) und ihre Bedeutung für die Selbstständigkeit dieser Zellen, München. med. Wchnschr. **60:** 1981-1984, 1913.
2. Rosenthal, N.: Some Atypical Cases of Leukemia, M. Clin. North America **4:** 1607-1637 (March) 1921.
3. Dameshek, W.: Acute Monocytic (Histiocytic) Leukemia, Arch. Int. Med. **46:** 718-740 (Oct.) 1930.
4. Clough, P. W.: Monocytic Leukemia, Bull. Johns Hopkins Hosp. **51:** 148-177 (Sept.) 1932.
5. Gittins, R., and Hawksley, J. C.: Reticulo-Endotheliomatosis, Ovarian Endothelioma and Monocytic (Histiocytic) Leukemia, J. Path. & Bact. **36:** 115-131 (Jan.) 1933.
6. Farrar, G. E., Jr., and Cameron, J. D.: Monocytic Leukemia with Data on Individuality and Development of the Monocyte, Am. J. M. Sc. **184:** 763-770 (Dec.) 1932.
7. Rinehart, J. F.: Stem Cell of Monocytes, Arch. Path. **13:** 889-898 (June) 1932.
8. Rucks, W. W., Jr., and Cunningham, R. S.: Report of a Case of Monocytic Leukemia, South. M. J. **24:** 1089-1092 (Dec.) 1931.
9. Cooke, W. E.: Acute Monocytic (Histiocytic) Leukaemia, Lancet **2:** 129-130 (July 18) 1931.
10. Gardner, S. N.: Acute Monocytic Leukemia: Case Report, New England J. Med. **207:** 776-779 (Nov. 3) 1932.
11. Sydenstricker, V. P., and Phinizy, T. B.: Acute Monocytic Leukemia: A Case with Partial Autopsy, Am. J. M. Sc. **184:** 770-777 (Dec.) 1932.
12. Böhne, C., and Huismans, L.: Chronic Leukemia Reticulo-Endotheliosis, Virchows Arch. f. path. Anat. **283:** 575-592, 1932.
13. Osgood, C. W., and Lyght, C. E.: Monocytic Leucemia with Report of 2 Cases, J. Lab. & Clin. Med. **18:** 612-626 (March) 1933.
14. Swirtschewskaja, B.: Leukemic Reticulo-Endotheliosis (Monocytic Leukemia): A Disease of the Reticulo-Endothelial System, Virchows Arch. f. path. Anat. **267:** 456-476, 1928.
15. Lawrence, J. S.; Josey, A. L., and Young, M. W.: Three Cases of Monocytic Leukemia, Folia haemat. **44:** 332-351 (June) 1931.
16. Farley, D. J.: Monocytic Leukemia, M. Clin. North America **13:** 991-999 (Jan.) 1930.
17. Tschistowitsch, T., and Bykowa, O.: Retikulose als eine Systemerkrankung der blutbildenden Organen, Virchows Arch. f. path. Anat. **267:** 91-105, 1928.
18. Bock, H. E., and Wiede, K.: Zur Frage der leukämischen Retikuloendotheliosen (Monocytenleukämien), Virchows Arch. f. path. Anat. **276:** 553-586, 1930.
19. Vyshegorodtzeff, V. D.: Zur Frage der monozytären Leukämie, Folia haemat. **38:** 355-366 (July) 1929.
20. Ugriumow, B.: Ein Fall von akuter Retikulo-Endotheliose, Centralbl. f. allg. Path. u. path. Anat. **42:** 103-106 (March 30) 1928.
21. Fleischmann, P.: Der zweite Fall von Monozytenleukämie, Folia haemat. **20:** 17-32, 1916.
22. Bingel, A.: Monozytenleukämie (?) Deutsche med. Wchnschr. **42:** 1503 (Dec. 7) 1916.
23. Anagnostu, J.: Ueber einen seltenen Fall von chronischer monozytoider Promyelocyten-Leukämie, Folia haemat. **43:** 446-453 (March) 1931.
24. Hittmair, A.: Zur Frage der sogenannten Retikuloendotheliose, Folia haemat. **39:** 248-264 (Dec.) 1929.

cent monocytoid cells were found in the blood along with many myeloblasts and promyelocytes. He expressed the belief that these monocytoid cells are developed from myeloblasts. Bykowa [25] believed in a similar origin for the monocytes in his case 2, as did Reich [26] in his case.

Likewise, there is no unanimity of opinion concerning the classification of aleukemic cases of reticuloendotheliosis, in which the postmortem changes are quite similar to those in the leukemic type. Clinically, most of the cases reported have shown anemia, hemorrhagic diatheses, fever, enlargement of the nodes, spleen and liver, and oftentimes necroses in the mouth or the throat. Tschistowitsch and Bykowa [17] and Feller and Risak [27] considered their cases to be true aleukemic states similar to so-called aleukemic leukemia of other varieties. Akiba,[28] Terplan,[29] Letterer [30] and Krahn,[31] however, expressed the belief that the condition is one of bizarre response to infection. At the present time the question as to the true state of affairs cannot be answered. In only one case, that reported by Feller and Risak,[27] were immature monocytes found in the aleukemic blood. The finding of tumor-like nodules in the spleen, skin, esophagus, gallbladder and epicardium in the case reported by Lasowksy [32] is more in keeping with a leukemic process than with infection. Goldzieher's [33] case with marked involvement of the bone marrow and the bone substance also favors this view.

REPORT OF CASES

CASE 1.—F. P., a white schoolboy, aged 17, was admitted to the Pasadena Hospital on Feb. 9, 1932, in the service of Dr. Duncan Parham, with an ulcerative lesion around his right lower second molar, gingivitis, rather marked anemia, malaise and generalized swelling of the lymph nodes.

About four weeks before admission he said that he felt lymph nodes in his left axilla, but claimed that he was perfectly well until an infection of the gums developed one week later, which he claimed was due to the breaking off of a wooden toothpick between the gum and the molar. The infection spread to involve all the gums and was diagnosed as Vincent's angina by the patient's brother, a dentist. The patient was treated for this condition with local applications of neoarsphenamine.

TABLE 1.—*Blood Findings in Case 1*

Date, 1932	Hemoglobin, Gm.	Red Cells, Millions	Leukocytes	Myeloblasts	Promyelocytes	Myelocytes	Metamyelocytes	Stab Forms	Segmented Forms	Eosinophils	Monocytes	Lymphocytes	Platelets
2/ 9	11.0	3.92	50,300	0	0	0	1.5	4.5	5	0.5	75	13.5	379,000
2/11	10.5	3.17	45,000	0	0	0	1.5	1.5	4	0	84.25	8.75	
2/13	9.6	2.97	60,000	2	0	0	0	0	2	0	91	5	
2/15	9.2	2.67	50,700	0	0	1	0.5	2	0.5	0	89	7	240,000
2/16	...	....	45,000	0	0.5	1	1	1	2.5	0	84.5	9.5	
2/22	8.0	2.41	25,100	0	0	1.5	0	3.5	5	0.5	72.5	17	164,000
2/26	8.0	2.63	28,550	0.5	0	1	0	3	17.5	0	63	15	104,000

On a few occasions his temperature was slightly elevated. During the week before admission his gums had swollen markedly and had become markedly thickened and reddened. General enlargement of the lymph nodes had developed in all the superficial groups. He had no evidence of bleeding either in the skin or in the mucosae, but rather marked anemia developed. His appetite had been very poor, and he had lost considerable weight.

On examination, a foul-smelling, necrotic lesion about 2 cm. in diameter was found about the second right lower molar, and marked swelling, reddening and thickening of the rest of the gums were present. Marked generalized enlargement of the lymph nodes was present. The spleen was half-way from the ribs to the umbilicus, and the liver was three fingerbreadths below the costal margin. The heart and lungs were normal. The temperature varied from 100 to 102 F.; the pulse rate from 100 to 110, and the respiratory rate, from 20 to 25. He continued to go downhill during his stay in the hospital. During the last week of life the nodes decreased moderately in size and the spleen shrank somewhat, but was still two fingerbreadths below the ribs. The ulceration in the mouth extended to the throat; there was marked edema of the peritonsillar areas and palate, and marked difficulty in respiration resulted. During the last few days of life, petechial hemorrhages were found in the skin, chiefly of the chest, and on the last day moderate jaundice appeared. Death occurred apparently from exhaustion and bronchopneumonia on Feb. 27, 1932. A clinical diagnosis of leukemic reticulo-endotheliosis was made on the clinical and laboratory evidence.

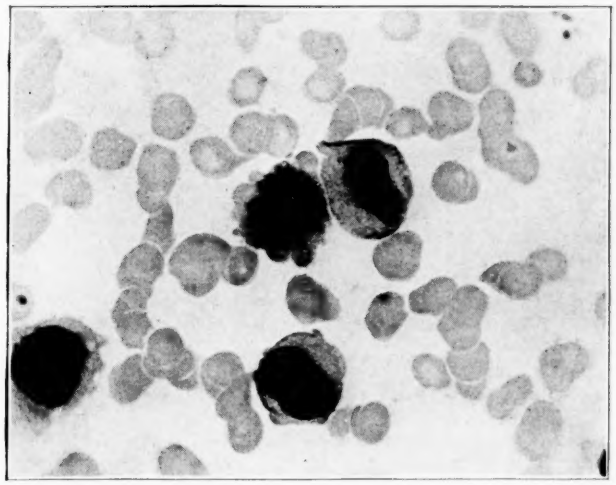


Fig. 1 (case 1).—Immature monocytes in blood smear, one showing mitosis.

Laboratory examinations showed several specimens of urine to be concentrated and to contain 2 plus albumin and large numbers of granular and renal epithelial cell casts. Smears from the ulcer in the gum showed many Vincent spirochetes and fusiform bacilli, staphylococci, streptococci and other bacteria found in the mouth. Aerobic cultures yielded chiefly Staphylococcus aureus-haemolyticus and Streptococcus haemolyticus-beta. Two blood cultures were negative. The Wassermann and Kahn tests were negative. The blood chemistry, determined February 17, showed: nonprotein nitrogen, 50 mg.; uric acid, 7.2 mg.; sugar, 111 mg., and creatinine, 1.6 mg. The blood counts are given in table 1.

Study of the cells with Wright, Giemsa and peroxidase stains showed no noteworthy changes in the cells other than those tabulated as monocytes (fig. 1). These cells were all about from one and one-half to two times the diameter of neutrophils, and only rarely could cells with mature nuclei be found. In the remaining cells the nuclei were obviously immature and showed nuclear patterns varying from a fine spongelike network to the coarser lacing seen in mature monocytes, of which very few were seen. The nuclei were oval, indented or sometimes bean-shaped. The cytoplasm was dull, pale blue and of ground-glass appearance, and the majority of the cells contained a fine,

25. Bykowa, O.: Das retikulo-endotheliale System in der Pathogenese der akuten Leukosen, Folia haemat. **43:** 475-481 (March) 1931.
26. Reich, Carl: A Case of Monocytoid Myeloblastic Leukemia, New York State J. Med. **32:** 1193 (Oct. 15) 1932.
27. Feller, A., and Risak, R.: Zur Kenntnis der Retikuloendotheliosen, Folia haemat. **43:** 377-392 (Feb.) 1931.
28. Akiba, R.: Virchows Arch. f. path. Anat. **260:** 262-270, 1926.
29. Terplan, K.: Ueber akute aleukämische, „Retikulose," Verhandl. d deutsch. path. Gesellsch. **25:** 69-77 (April) 1930.
30. Letterer, E.: Aleukämische Retikulose, Frankfurt Ztschr. f. Path **30:** 377-394, 1924.
31. Krahn, H.: Reticuloendotheliale Reaction oder "Reticuloendotheliose," Deutsches Arch. f. klin. Med. **152:** 179-201 (Aug.) 1926.
32. Lasowsky, J. M.: Ueber eine systembezogene blastomartige Hyperplasie des Reticuloendotheliums, Virchows Arch. f. path. Anat. **288:** 631-641, 1933.
33. Goldzieher, M. A., and Hornick, O. S.: Reticulosis, Arch. Path. **12:** 773-782 (Nov.) 1931.

typical, lilac, monocytic granulation, much finer than leukoblastic or neutrophilic granules. In some of the youngest cells these granules were arranged chiefly about the nuclei, the granules filling the cytoplasm. Only rarely could very young ovoid cells with no granulation be found. In these cells nucleoli were sometimes found. Many of the cells showed marked pseudopod formation or fluting of the edge of the cytoplasm. A few cells showed mitosis. Rare cells indistinguishable from myeloblasts and leukoblasts were found, but it was impossible to trace gradations from these cells to the

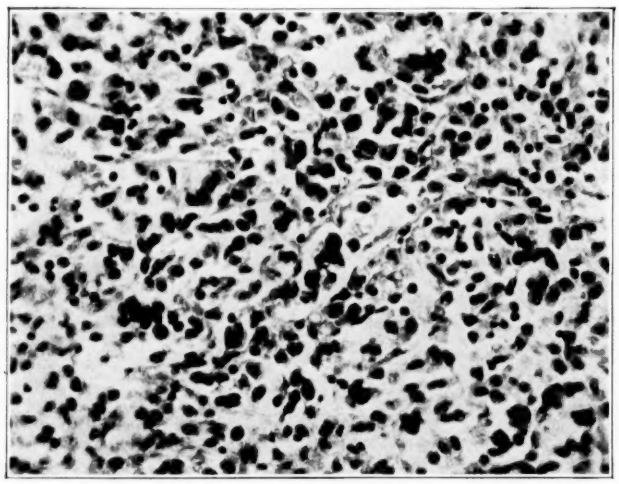


Fig. 2 (case 1).—Spleen, showing obliteration of architecture by reticular cell overgrowth. High power view.

type cell previously described. In the rare leukoblast the granules were much larger and darker than the granules of the young monocytes. The type cell was peroxidase-negative when stained according to the Goodpasture, Sato and Washburn methods. There was no noteworthy change from day to day in the immaturity of the cells in the various counts tabulated. In fresh moist preparations the cells were actively motile, and in Janus green preparations the dye was found in many small dots throughout the cytoplasm. The red cells showed a slight variation in size and shape and on the average were slightly smaller than normal. A few cells showed polychromatophilia, and an occasional normoblast was found.

On the day after admission, a soft, fleshy node 4 by 4 by 2 cm. was removed from the left groin. Sections showed nearly complete obliteration of the normal architecture by a profound overgrowth of reticular cells similar to those in the nodes removed at autopsy, to be described.

Autopsy was done four hours after death.

The anatomic diagnosis was: acute leukemic reticulo-endotheliosis with marked enlargement of the spleen and liver, hyperplasia of the bone marrow and diffuse enlargement of the lymph nodes throughout the body; ulcerogangrenous inflammation of the base of the tongue and the throat and gums; reticular cell proliferation in the kidneys, pancreas, serous surfaces, stomach, intestines, liver and all the organs sectioned; hypostatic hyperemia and bronchopneumonia of the lungs; fibrinous pleuritis and peritonitis; moderate icterus; moderate anemia; petechial hemorrhages of the skin and of the pelves of the kidneys; cloudy swelling of the myocardium with dilatation of the heart.

The necrotic lesion in the base of the tongue extended into both peritonsillar areas and the base of the epiglottis. Marked swelling of the aperture to the larynx and of the false cords, pharynx and palate was also present. The lymph nodes in all groups of the body varied from 1 to 3 cm. across and were soft, fleshy and opaque gray-pink on the surfaces made by section. Of particular interest was an organizing fibrinous exudate about the capsule of the spleen, between the liver and diaphragm and on the pleural surfaces. The omentum, mesentery and gastrocolic ligament were stiffened by a diffuse, soft, apparent fibrosis, and the serosa of the posterior abdominal wall was moderately thickened. The liver weighed 2,400 Gm. and was light tan-yellow; the markings were just visible. The kidneys were enormous and weighed, together, 550 Gm. They were soft and bulged markedly under the capsule when cut, and the surfaces were opaque and gray-yellow. The heart showed nothing abnormal besides dilatation of its chambers. The thymus measured 8 by 5 by 2 cm. and resembled the lymph nodes on section. The bone marrow of the femur, ribs, vertebrae and sterum was devoid of fat, gray-pink and fairly firm in consistency, and could be removed in a solid chunk from the shaft of the femur.

Histologic sections showed the architecture of the spleen (fig. 2) and the lymph nodes (fig. 2) to be obliterated by a profound growth of reticular cells with oval, indented or bean-shaped vesicular nuclei and a moderate amount of cytoplasm, in intimate connection with a fine meshwork of abundant reticulum demonstrated by Foot's silver stain. Mitoses were common. This proliferation distorted the splenic sinuses and the lymph sinuses in the nodes. No evidence of proliferation of endothelium was found. Occasionally a small nest of myeloid cells, apparently myeloblasts, and rarely a clump of nucleated red cells and a rare megakaryocyte were seen in the spleen and the lymph nodes, but these bore no such relation to the reticulum as did the reticular cells. The liver (fig. 4) showed marked proliferation of reticular cells in a large amount of reticulum in the periportal channels. There was no undue proliferation of Kupffer cells. The bone marrow was entirely devoid of fat, and the majority of the cells present were similar to those in the spleen, lymph nodes and elsewhere. A moderate number of foci of myelogenous cells and erythropoietic centers and a few megakaryocytes were present. A large amount of fine reticulum was present in between the reticular cells. In all the organs, leukemic cells were found in large numbers in the blood vessels; they were similar to the cells in the reticulum. Sections of the kidney showed marked reticular cell proliferation throughout the organ and profound degenerative changes in the tubules. The thymus (fig. 5) was almost entirely composed of reticular growth. In the intestine the serosa of the entire wall was involved. The pancreas, peribronchial tissues and pleura were likewise the seat of reticular cell and fibrillar overgrowth. In sections of the necrotic area in the throat stained by Warthin's method for spirochetes,

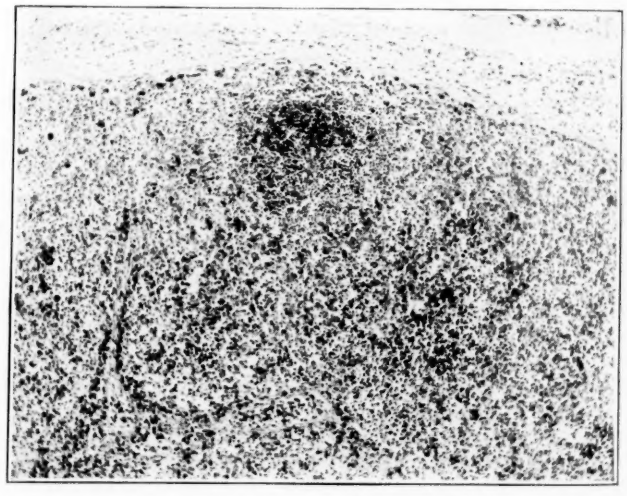


Fig. 3 (case 1).—Lymph node, showing overgrowth of reticulum cells and marked atrophy of germinal center. Low power view.

complete gangrene of the superficial portions was seen, in which there were many Vincent's spirochetes and myriads of other bacteria. Below this were a marked growth of reticular cells in the soft tissues and penetration of spirochetes alone deep into the non-necrotic base of the ulcer.

Smears of the spleen and lymph nodes showed the predominating cells to resemble those in blood smears, and only the few granulocytes present were peroxidase-positive. A few more granulocytes, chiefly myeloblasts, were found in smears of the bone marrow. No bacteria were demonstrated in smears or sections of any of the organs.

CASE 2.—Mrs. M. R., a white woman, aged 22, entered the Los Angeles County General Hospital on Jan. 18, 1932, complaining of pain in the throat and a swelling in the left tonsillar area of one week's duration, which had ruptured and discharged pus two days before admission, general malaise and loss of appetite. Examination showed a draining peritonsillar abscess, and the rest of the examination was essentially negative, except that the patient appeared pale and sicker than she should from the local lesion in her throat. A blood count revealed anemia and leukopenia which could not be explained.

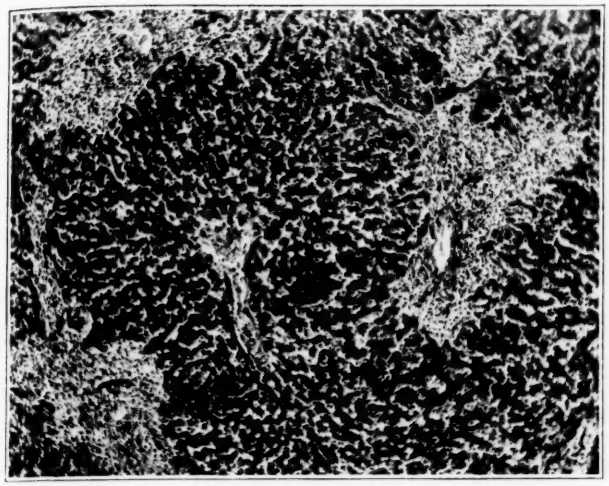


Fig. 4 (case 1).—Liver, showing periportal reticular hyperplasia. Low power view.

After transfusion, on January 31, she felt considerably better, but her temperature did not return to normal for three weeks from its average of 101 F. in the first week. She left the hospital against advice on February 18 and was not heard of again until March 30, when she returned to the hospital still complaining of pain in the left tonsillar area, fever, generalized aching, malaise and swelling of the nodes in the neck which had started to develop shortly after she left the hospital. On examination, she appeared acutely ill and pale, with a temperature of 101.6 F. There were swelling and redness of the mucosa of the throat, pharynx and palate, and a gray membrane was present over the previously incised region in the left tonsil. Moderate enlargement of the cervical and submaxillary nodes, but not of the nodes of the groins and axillae, was present. The spleen and liver were not felt. The heart and lungs were normal. No petechiae were found in the skin.

Laboratory examinations revealed negative Wassermann and Kahn tests, several negative blood cultures and negative urinalysis except for a trace of albumin. A Widal test was positive at a dilution of 1:80, but the patient had had typhoid in late childhood. The blood counts are given in table 2.

TABLE 2.—*Blood Findings in Case 2*

Date	Hemoglobin (Sahli)	Red Cells, Millions	Leukocytes	Neutrophils	Lymphocytes	Monocytes	Eosinophils	Basophils
1/27/32	55	2.65	1,600	28	71	1	0	0
1/31/32	52	3.35	1,750	20	79	1	0	0
2/ 1/32	59	3.61	2,200	18	80	2	0	0
2/ 8/32	64	3.25	3,050	30	65	5	0	0
2/11/32	67	3.45	4,400	40	55	3	1	1
3/31/32	60	2.88	14,900	5	26	69	0	0
4/ 5/32	58	2.84	37,450	1	5	94	0	0

The monocytes in smears, up to and including those made on February 11, were mature monocytes, but in the last two smears, made on March 31 and April 5, they were practically like those in case 1.

The cells described as monocytes were similar to those in case 1. They were almost entirely immature cells with a fine chromatin pattern in their nuclei and occasionally one or more small nucleoli. The cytoplasm was a typical dull blue, with very fine, dustlike, lilac granules throughout the entire cytoplasm in most cells, and about the nucleus in the youngest cells. A few cells had no granules. Pseudopod formation and scalloping of the edges of the cells were prominent. The peroxidase stain failed to show granules in the monocytes.

The patient went steadily downhill, the ulceration and swelling in her throat increased, and her temperature remained around 102 or 103 F.; she died on April 6. The clinical diagnosis was acute monocytic leukemia. Autopsy was conducted two hours after death by Dr. Butt. The summary is as follows:

The anatomic diagnosis was: acute leukemic reticulo-endotheliosis with moderate generalized involvement of the lymph nodes, moderate enlargement of the spleen and liver and moderate reticular hyperplasia of the bone marrow; reticular cell proliferation in the pancreas, ovaries, kidneys, lungs, suprarenal glands, uterus, heart, pleura, pericardium and thymus; acute hemorrhagic bronchopneumonia; ulcerogangrenous inflammation of the left tonsillar region; acute fibrinous pleurisy; anemia; petechial hemorrhages in the skin of the shoulders, arms and thighs and the pleurae.

The lymph nodes were moderately enlarged, the largest, in the mesenteric group, being 1.5 cm. long. The nodes were discrete, soft and gray-white on section. The spleen weighed 550 Gm.; the pulp was rather firm, red and homogeneous. The liver weighed 2,100 Gm.; the sectioned surface was pale, and the peripheries of the lobules were visible as small gray points. The bone marrow of the femur was composed of fat, enclosing small gray areas, and that of the sternum was nearly fat-free and gray-red. Both lungs were covered on their dependent surfaces with a thin layer of fibrin. A few petechial spots were also found. The dependent portions were boggy and edematous and showed a few small consolidated areas with much hemorrhage. The heart was moderately dilated. The epicardium showed a few petechiae. The ovaries were moderately swollen and on section appeared soft and gray-red.

Histologic study revealed findings practically similar to those in case 1. Proliferation of similar reticular cells without endothelial hyperplasia was seen in all the organs, including the uterus and ovaries, most marked in the spleen and lymph nodes, where the normal architecture was obliterated by a profound growth of these cells. The growth in the liver was

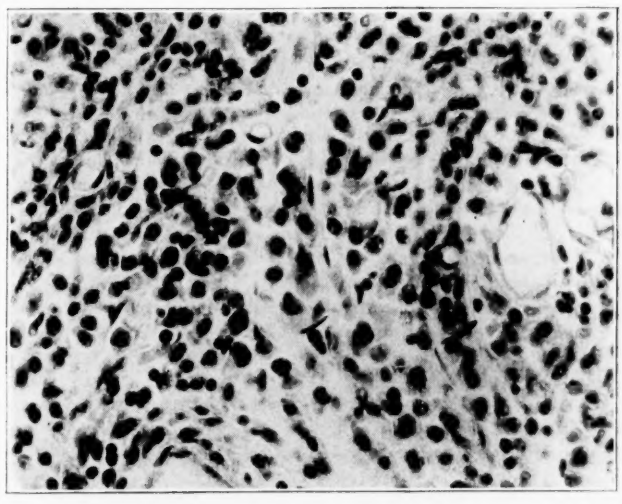


Fig. 5 (case 1).—Thymus, showing marked growth of reticular cells similar to leukemic cells in blood capillary. High power view.

periportal. Some foci were found in the myocardium, in and about which necrosis of the muscle fibers was present.

CASE 3.—Mrs. L. B., a housewife, aged 58, entered the Los Angeles County General Hospital on Jan. 18, 1933, complaining of weakness, loss of appetite and burning on urination, of about six weeks' duration, previous to which she had been well and active. At the onset of her illness she had several teeth removed, and two days later she had fever and general malaise which she called the "flu." However, she had no cough or respiratory symptoms. Soon thereafter burning

and frequency of urination developed, which continued until admission. She constantly felt so tired and weak that she could not do her housework. Her appetite had been so poor that she had lost a moderate amount of weight. Some stuffiness of the nose and soreness of the throat had developed in the last few weeks. Her past history and family history were irrelevant, except that she had never had urinary burning or frequency until the present illness. She had no history of cough or shortness of breath until the last few weeks, when these symptoms developed to a moderate degree.

On examination she appeared to be poorly nourished, anemic and considerably older than her given age. The positive findings of interest were: pallor of the skin and mucosae and absence of all teeth; the sites of the recent extractions were not entirely healed. The tongue was coated, the pharynx clear, and the tonsils large, smooth and reddened. There were a few small, pea-sized, movable lymph nodes in the groins, but none in the other palpable groups. The heart was rapid, but otherwise showed nothing of interest. The lungs were resonant throughout; the breath sounds were normal. The spleen was not palpable, but the liver extended one fingerbreadth below the margin of the ribs. Pelvic examination gave negative results. The temperature was 99 F.; the pulse rate, 100; the respiratory rate, 22, and the blood pressure, 130 systolic and 70 diastolic.

On admission, urinalysis showed a cloudy acid urine; the specific gravity was 1.028; there was 2+ albumin; the urine was negative for sugar, and in the sediment there were numerous leukocytes but no casts. The Wassermann and Kahn tests were negative.

A blood count taken on Jan. 22, 1933, showed: hemoglobin, 44 per cent (Sahli); red cells, 2,330,000; white cells, 35,400, and platelets, 207,000. There was no excess bleeding from the puncture wound. Study of the smear showed: myeloblasts, 12 per cent; neutrophils, 4.5 per cent; lymphocytes, 7 per cent; monocytes, 72 per cent, and promyelocytes, 4.5 per cent. The monocytes or type cells were large cells from 20 to 40 microns in diameter with abundant pale blue cytoplasm containing fine purple granules, much finer than those in leukoblasts, situated chiefly about the nucleus or throughout the entire cytoplasm. The nuclei were of various degrees of immaturity, most of them showing a very fine arrangement of chromatin. Most of the nuclei were ovoid, indented, kidney-shaped or even partially or completely lobed. Many of the cells showed pseudopodia, and nearly all showed scalloped or fluted borders. Transitions from these cells to myelocytes could not be demonstrated. On January 26, the white count was 42,000, and on February 2, 76,000. Smears showed practically the same differential count as previously. On February 10, the white cell count was 60,000, and the differential count was as follows: myeloblasts, 9 per cent; leukoblasts, 13 per cent; promyelocytes, 2.5 per cent; metamyelocytes, 1 per cent; neutrophils, stab forms, 1 per cent and segmented forms, 3.5 per cent.; lymphocytes, 6 per cent, and monocytes, 64 per cent. The cell picture was the same as that just described.

The patient went progressively downhill, running a fever of from 99 to 100 F. during the entire stay in the hospital. Her spleen was never palpable, but moderate generalized lymphadenopathy developed, the largest nodes, about 2 cm. long, being felt in the groin. A blood transfusion of 500 cc. was given on February 10, but within a few days the patient appeared as pale as before. During the last two weeks more marked redness and swelling of the tonsils and peritonsillar regions, palate and laryngeal aperture developed, with marked embarrassment to respiration and swallowing. No ulceration, however, was noted. There was no abnormal bleeding during the illness. Death occurred on February 23, or about eleven weeks from the onset of the disease. Permission for autopsy was refused, but a small, soft, gray, pea-sized node was removed from the groin three weeks before death. On section it showed obliteration of the normal architecture by a marked proliferation of the reticular cells of the same type as in cases 1 and 2. Rarely an eosinophilic myelocyte was also seen. Smears made from the node showed a predominance of large mononuclear cells similar to those in the blood.

CASE 4.—Mrs. L. A., aged 52, was admitted to St. Francis Hospital, San Francisco, on March 10, 1933, with the history of having had a tooth extracted from the left side of her upper jaw on February 10. The socket apparently healed well, but one week later she had swelling of the lymph nodes about the angle of the left side of the jaw. Considerable pain and swelling developed in the whole left side of the upper jaw about the same time, and she was compelled to spend most of her time in bed. Moderate fever was present at this time. The inflammation failed to respond to cold compresses and gargles, the pain became more severe, the gums became swollen and tender and bled easily but not spontaneously, and the patient was sent to the hospital. She became progressively worse and had a fever of from 101.6 to 104.6 F. The pulse rate varied from 90 to 140, and the respiratory rate, from 28 to 44. She died on March 14. Her spleen, liver and axillary and inguinal lymph nodes were not palpable. Dr. A. M. Moody, pathologist, who allowed me to study the smears and report the case, first made the diagnosis of monocytic leukemia on the clinical history and the blood findings, which were as follows: On March 10, the hemoglobin was 5.5 Gm.; the red cells numbered 2,470,000, and the white cells, 105,000. The differential count showed: myeloblasts, 1 per cent; leukoblasts, 1 per cent; metamyelocytes, 0.5 per cent; neutrophils, stab forms, 1 per cent and segmented forms, 2.5 per cent; lymphocytes, 6 per cent, and monocytes, 88 per cent. The next day there were 92,700 white cells, with 85 per cent monocytes. On March 12, the hemoglobin was 5.2 Gm.; the red cells numbered 2,070,000, and the white cells, 102,000, of which 87 per cent were monocytes. On March 13, the blood count showed 116,800 white cells, with 86 per cent monocytes.

The cells classed as monocytes were with rare exceptions immature monocytes with nuclear shape and characters similar to those in cases 1 and 2. Pseudopod formation was often seen, and fine granulation of the cytoplasm was found in nearly all of the cells. The cells were peroxidase-negative.

A blood culture was negative. The reaction to the Wassermann test was 4+; that to the Kahn test, 2+. Autopsy was not allowed.

COMMENT

The first two cases were typical examples of acute reticulo-endotheliosis. The first was leukemic from the start, and the second was aleukemic until the patient's second admission to the hospital, when the white cell count was found to be high. The fourth case showed a typical blood picture, and it is regretted that an autopsy was not allowed in order to determine the changes in the tissues. Case 3 is open to some question, since not sufficient counts were made and autopsy was not granted. The presence of a moderate percentage of immature myelogenous cells (17 per cent) is suggestive of a myeloblastic origin of the monocytes, but the biopsied node showed predominantly reticular cell proliferation, and the monocytic granules in the blood smear were peroxidase-negative, two points which lead us to believe that this case also should be grouped with the others as acute leukemic reticulo-endotheliosis or monocytic leukemia.

SUMMARY

Leukemic reticulo-endotheliosis (monocytic leukemia) is a distinct condition characterized by the presence of a clinical picture similar to that in other acute leukemic states and the presence of an extraordinary number of monocytes in the blood, usually immature forms. Pathologically, a diffuse enlargement of the lymph nodes, spleen and liver is found, and in the microscopic examination of the tissues, widespread proliferation of reticulo-endothelial cells is found, to a degree as great as or greater than is usually found in the so-called infiltrates of other leukemias.

A report of four cases conforming to the foregoing feature, with autopsies in two and biopsy in one, is given.

ABSTRACT OF DISCUSSION

DR. ROY R. KRACKE, Emory University, Ga.: During the past year the Hematological Registry of the American Society of Clinical Pathologists has centered its activities chiefly on the study of monocytic leukemia. In the Scientific Exhibit there are twenty-six blood films and autopsy preparations from cases that have been reported in this country and from all of the cases that have been reported from Great Britain. There is justification for establishing this disease as a clinical entity only if the view is accepted that the monocytes have a separate origin from other leukocytes. Of the twenty-six cases, one third were reported as monocytic leukemia, in spite of the fact that the leukocyte count seldom, if ever, went above the normal figure, the diagnosis being established chiefly on the immaturity of the cell type that was found in predominating numbers. This so-called aleukemic state is seen in monocytic as well as in other leukemias. I have been impressed by the close relationship that seems to exist between the aleukemic states of monocytic and other leukemias with agranulocytosis. For example, there is one case reported in the literature in which at one time the white cell count was 600, with complete disappearance of cells except lymphocytes. Therefore, the diagnosis of agranulocytosis was made. Yet in this patient only a few weeks later the white cell count was over 100,000. Four of the cases seem to be of undoubted myeloid origin, presumably originating in the marrow. There is one case reported by Lawrence three years ago, a typical case of monocytic leukemia in which the diagnosis was made on clinical observations, fixed films and supravital studies, which later eventuated into a definite case of myeloid leukemia. This is in accordance with the views of many hematologists, especially the Europeans and notably the school headed by Naegeli, who believe that monocytic leukemia should not be construed as a clinical entity in which the cell type is the monocyte or monoblast, but that these are temporary variants of myelogenous leukemia. As Naegeli states, they will finally pass into myeloid leukemia if the patient lives long enough. I am inclined to believe that there are two types of monocytic leukemia: one in which there is a true reticulo-endotheliosis as exemplified by the four cases that have been presented by Dr. Foord, and another, which apparently has its origin in the bone marrow and which should more properly be called an acute or atypical myeloblastic leukemia. It may be possible that in these blood dyscrasias, on the one hand, an excessive stimulation of the bone marrow occurs, whereas, on the other hand, the depression of the same functions results in agranulocytosis. There are many factors in common between the two diseases. Apparently both are of recent origin, being reported only within the past fifteen years and occurring only in white persons. I agree with Dr. Foord in his interpretation of his cases in that they seem to be cases of true reticulo-endotheliosis and probably not variants of myeloid leukemia.

DR. C. H. BUNTING, Madison, Wis.: I have seen four cases that might come under this classification. I have, however, objected to the name monocytic leukemia on theoretical grounds. If, as appears probable, the normally circulating monocyte is of bone marrow origin and among its other characteristics gives the oxidase reaction, the majority of these reported cases could not be considered to be typically monoblastic leukemias. Two of the cases I have seen were shown pathologically to be primarily of lymph node origin. They showed in addition to very pathologic, large cells, somewhat resembling monocytes, a fairly high percentage of much larger cells with large oval nuclei and prominent nucleoli, typical morphologically of endothelial cells. The third case, clinically of lymph gland origin, presented no endothelial cells but a preponderance of atypical monocytoid cells the size of large lymphocytes and also atypical small lymphocytes. The fourth case, seen in the last two weeks, and without completed pathologic examination, might be called monocytic leukemia, as the preponderant atypical cells gave a sharp peroxidase reaction. It must be granted, however, that in any type of leukemia one cannot disregard any part of the hematopoietic system. Bone marrow, lymphoid tissue and spleen are all involved in any reaction within the system.

DR. R. S. BOLES, Philadelphia: I want to mention a case that Dr. Custer and I observed in the Philadelphia General Hospital, of aleukemic monocytic leukemia diagnosed during the life of the patient, which I believe is unique in the report of these cases. The diagnosis was based on a biopsy of the sternal marrow and a biopsy of the lymph glands and was confirmed by autopsy. It is interesting in our case that there was present a very marked reticulo-endothelial hyperplasia. The case was similar to those reported by Dr. Kracke in that infection; i. e., otitis media preceded the onset of the illness, which was in an Italian girl, aged 14 years. Several times during the course of her illness the peripheral blood study showed a complete absence of the granulocytic series of cells, and a diagnosis of agranulocytosis therefore was considered. The biopsy and autopsy indicate that it is unsafe to base a diagnosis on the study of the peripheral blood alone, in these cases. The question of Vincent's infection came up in this case. While the girl had an acute otitis media, no Vincent's organisms could be found except toward the end of her illness, when they were found in the vagina. At necropsy no lesion in the vagina could be noted. The question of Vincent's infection as an etiologic factor in these conditions is always interesting. Dr. Crocker, hematologist at the Philadelphia Hospital, believes that Vincent's organisms are an etiologic factor, in spite of certain studies showing a lack of pathogenicity. Whether the Vincent organisms can be subdivided into various strains, and certain strains be etiologic in nature, is worth considering. Crocker has found that those occurring in ordinary trench mouth gingivitis are of a coarse, heavy structure, whereas those associated with agranulocytosis are of a much finer, threadlike structure.

DR. FREDERIC E. SONDERN, New York: Clinically it might be well to emphasize the significance of the red cell picture in cases of monocytic leukemia. In my experience with quite a number of them the immediate prognosis is better based on the type of anemia and the rapidity with which it increases than on the number and types of leukocytes as long as these establish the diagnosis. In other words, a picture typical of pernicious anemia with only moderate leukocytosis and moderate characteristic change in the differential count offers a poorer immediate prognosis than a picture typical of secondary anemia with a more marked leukocytosis and more pronounced characteristic change in the differential count. Occasionally there is a recovery from this disease; while such a course may represent an error in diagnosis, this seems difficult to believe on account of the typical blood picture. I recall three such supposed recoveries. In one, the acute febrile stage with increasing anemia lasted some ten weeks, but it was five years before the leukocytes and the relative increase in monocytes returned to normal figures. In the two others the acute stage was not as severe, and typical blood pictures were months in returning to normal. It is an interesting fact that the organisms of Vincent's angina were found in the throat of every patient I have seen with but one exception. Years ago I had the impression of a probable relationship between these organisms and acute leukemia, but since then I have also repeatedly found them in cases of infectious mononucleosis.

DR. VICTOR LEVINE, Chicago: There have recently been three cases of leukemia at the Cook County Hospital, two of which were true monocytic leukemias and one a case we could not diagnose until postmortem, but it proved to be a monocytic phase of a myelogenous leukemia. In all three cases a postmortem examination was performed, and the final basis for our diagnosis was the histologic examination of the bone marrow. In the case with the uncertain diagnosis before death the blood contained monoblasts and myeloblasts, the monoblasts being in marked predominance. Yet at postmortem the bone marrow was essentially that of a myelogenous leukemia with a preponderance of myeloblasts and myelocytes. On the other hand, the two cases of true monocytic leukemia showed at postmortem a marked predominance of monoblasts and monocytes. Thus, in cases of monocytic leukemia the bone marrow may be involved to an extent similar to that found in any other type of leukemia. In making a diagnosis of monocytic leukemia, the essential blood finding is the presence not only of large numbers of monocytes but also of numerous examples of the immature precursors of the monocytes, which we call monoblasts. Cases reported without the presence of these immature

forms are not true monocytic leukemias. Cases of this type, especially those in children, often following throat infections, should be classed as acute infectious mononucleosis. Unfortunately the literature is full of conflicting terms. The term "reticulo-endotheliosis" does not seem good, because it more properly belongs to cases of infectious origin with marked proliferation of reticulum and histiocytic cells in various organs. Such cases are not true leukemias. They do not have the typical blood and anatomic pictures and should be sharply separated from monocytic leukemia.

DR. A. G. FOORD, Pasadena, Calif.: In answer to Dr. Levine, I do not care to enter into a discussion of terminology but have merely followed the terms used by others in the literature and have included both the terms of leukemic reticulo-endotheliosis and monocytic leukemia in the title and have stressed the former name because the discussion was primarily from the pathologic standpoint. Since there is still a dispute as to the origin of the monocytes, I purposely refrain from entering into this phase of the subject. However, from present knowledge it appears that Dr. Kracke is right as to the origin of these cells from the reticulum cells in some cases and from the myeloblasts in others. In answer to Dr. Sondern, I can say that there are no cases reported in the literature in which the patients have recovered. In some cases of acute mononucleosis the cells in the blood are very hard to differentiate from the cells in the cases reported, but all cases with cells as those described end fatally. The immaturity of the nuclei is a very important feature in making the diagnosis.

RELAPSED OR RESISTANT CLUBFOOT OF EARLY CHILDHOOD

BURT G. CHOLLETT, M.D.
TOLEDO, OHIO

There are three distinct types of deformity to which the title of congenital talipes equinovarus can be given: 1. The common variety, which, except in rare instances, occurs in otherwise normal infants. 2. A rare type associated with, and part of, a failure of development of the extremity as a whole, either of the lower limbs alone or of the upper limbs as well; also arthrogryposis. 3. A rare type associated with the absence of the tibia and some of the toes.

If a real criterion is set for cured clubfoot, every clinic will have a certain number of disappointing results after all types of closed procedures have been exhausted. This is true even when treatment has been instituted early and efficiently carried out.

Pathologic specimens of clubfoot in infancy are rare. Most of the descriptions in the literature on this subject and specimens in museums are of the adult foot. Recognition of the size and location of the bones is difficult because the amount of subcutaneous fat present in the foot of the infant and small child hides the bony prominences, and the direction of the tendons is obscured and not easily located or traced to their insertion. Roentgenograms are an aid in older children but less helpful in early childhood before the bones are well developed, as there is no roentgenologic visibility.

At present, the widely accepted cause in common clubfoot is a failure of development to the normal state of all the structures of the foot, independent of any extrinsic influences, which results in a congenital subluxation of the astragalocalcaneoscaphoid joint and a shortening of the muscles and ligaments that control the socket for the head of the astragalus. The bones of the forefoot are relatively underdeveloped, and movements of the foot are restricted by the muscle shortening.

The bones of the foot, except in rare instances, though underdeveloped, are otherwise normal and are held fixed in the equinovarus position by the shortened ligaments, which have failed to develop, and by the underdevelopment of the muscles of the leg and foot, which is also a part of the primary failure of development of the entire limb.

When the normal foot is placed in equinovarus, the chief movement takes place in the astragalocalcaneoscaphoid joint; the other joints of the foot add little to the ability to assume this position. On comparing the normal foot held in equinovarus with clubfoot, it is found that the latter shows an exaggeration of this position. The astragalus is subluxated and separated from the scaphoid, which is internal and below the head of the astragalus; the os calcis is more inverted, and the muscles and ligaments are shortened, thus fixing the foot in equinovarus.

A survey of the last eighty cases of clubfoot in my clinic showed that a large number, approximately 45 per cent, were rather easily corrected by repeated manipulations and plaster fixation during the early months of infancy but that more than half of the cases had relapsed, requiring further treatment. Twenty-five per cent of these had been again manipulated with tenotomy of the achilles, plantar structures, and deltoid ligament and had been improved. Others, in spite of repeated manipulation and tenotomy of all resisting structures, reached the age of 3 or 4 years with a noticeable deformity, an awkward gait and an inability to run.

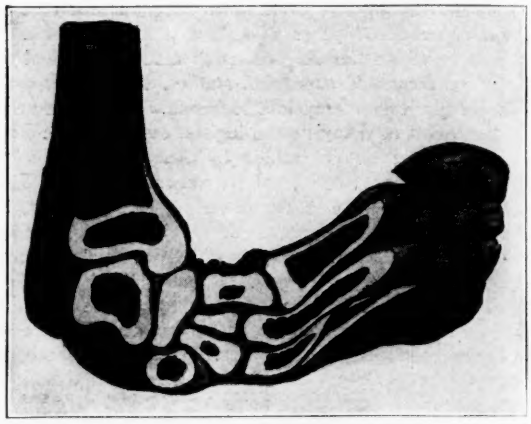


Fig. 1.—Taken from a specimen of congenital cubfoot in the Museum of the Royal College of Surgeons, London. This specimen illustrates very clearly the position which the astragalus occupies within the tibiofibular mortice. It also shows the difficulty that must exist in some deformities of altering the position of the scaphoid.

Nineteen per cent required open operation on the ligaments on the internal border of the foot, freeing the tarsal bones, and 10 per cent required subsequent manipulation, tenotomy and fixation after open operation.

The early manipulation with some form of fixation is the generally accepted treatment for clubfoot in infants and should begin at the age of 1 or 2 weeks and be rapidly carried to complete correction.

Whether the fixation is by adhesive plaster, splints or plaster casts is not as important as that all the manipulations be done by the same person, who has a very definite idea of the component parts of the deformity and the amount of force necessary to correct the deformity.

Read before the Section on Orthopedic Surgery at the Eighty-Fourth Annual Session of the American Medical Association, Milwaukee, June 14, 1933.

This procedure must be supplemented by lengthening of the plantar structures and tenotomy of the achilles tendon in many cases to complete the correction.

From recent experiences I am convinced that no manipulation is able to replace the scaphoid in some of the cases, and blind cutting can only by sheer luck regularly reach the ligaments, owing to the altered shape and position of the joints. Another observation is that a relapsed clubfoot is in reality a partial correction of the original deformity, which is hidden by a new position.

After repeated manipulations, the scaphoid at operation was found still in close contact with the sustentaculum. The head of the astragalus was still prominent on the dorsum of the foot and the os calcis was inverted. This must account for many failures to correct the deformity. In other words, relapsed cases are those in which the relations of the astragalus, scaphoid and os calcis, in spite of manipulation and tenotomies, remain the same as they were originally or only slightly altered.

A cured clubfoot should have a normal appearance and present a hollow on the dorsum of the foot in the position formerly occupied by the head of the astragalus, and the patient should be able voluntarily to evert and dorsiflex the foot well beyond the right angle.

It is not my purpose in this paper to attempt a discussion of the treatment of all types of clubfoot or to dwell on the various methods in use for all ages, from infancy to adolescence and adults, but to limit the discussion to the relapsed foot of early childhood, shortly after the walking age in an otherwise normal child.

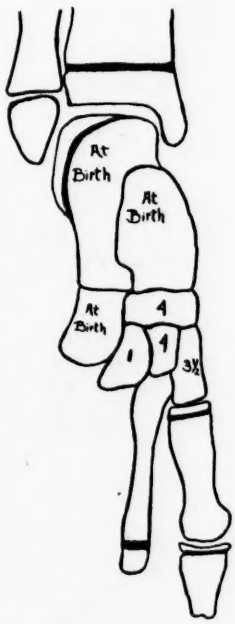


Fig. 2.—Age of x-ray visibility, from Camp and Cilley of the Mayo Clinic. The astragalus, os calcis and cuboid are visible roentgenographically at birth; the external cuneiform is visible at 1 year; the internal cuneiform is visible at from 3 to 3½ years, and the scaphoid and middle cuneiform are visible at 4 years.

My attention was called to the following operation, originated by Mr. E. P. Brockman [1] in London, and, while it is too early to report the final result in many of my cases, I feel that it has made a decided improvement in the results, decreased the number of severe manipulations, shortened the long periods of plaster fixation, and prevented a number of unnecessary tenotomies. A marked increase in the ability of the patient to evert and dorsiflex the foot voluntarily was also noted. Brockman bases his operation on his theory that the usual clubfoot is due to a congenital subluxation of the astragaloscaphoid joint and also that relapse is due to failure to reduce this dislocation (fig. 1). My observations coincide with the views of Brockman.

OPERATION

Under an Esmarch bandage a short incision is made over the outer side of the os calcis, and all the plantar muscles and fascia are freed from the plantar surface of the os calcis.

Another incision is then made through the skin and fascia along the inner border of the foot. The tibialis posticus tendon and the vessels will be recognized and found in a more forward position, passing straight down instead of in the usual curved position entering the sole of the foot at a right angle. On the posterior side of the tendon and vessels the incision is carried to the os calcis and the remaining plantar structures on the inner side with the origin of the abductor hallucis are freed with a small chisel. It is well to carry this stripping out on the surface of the os calcis to the calcaneocuboid articulation and up to the subastragalar joint.

Fig. 3. — Tracing from roentgenogram of M. S., aged 2 years, with relapsed clubfoot before operation. The scaphoid is not visible.

Vessels and tendons are retracted and the incision is carried to the scaphoid and internal cuneiform bones. The sheath of the tibialis posticus can be opened and the tendon divided if necessary. The insertion of the tibial tendon is free from the scaphoid and reflected with all the structures from the internal inferior surface of the tarsals, exposing the scaphoid and sustentaculum.

By moving the forefoot, one can identify the proximity of the scaphoid and the internal malleolus. All the ligaments on the internal and inferior surface are divided and, if the scaphoid and the internal malleolus are not widely separated, the ligaments on the superior surface of the scapho-astragalar joint must also be divided.

The foot is then manipulated and the forefoot everted. If it is not loosely held in a fully corrected position, the dissection is carried forward on the plantar surface, the attachment of the tibialis posticus being freed from the other tarsal bones, and all resisting ligaments on the superior internal surface of the scaphocuneiform joint, which resist, are also freed. In one case it was necessary to sever the ligaments between the internal cuneiform and the first metatarsal.

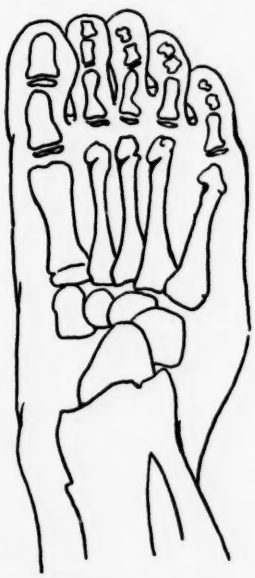


Fig. 4.—M. S., aged 6 years, four years after operation. There is a corrected position and development of the tarsal bones, but the scaphoid is still not visible.

For this operation to be successful, the dissection must continue until the scaphoid is fully replaced in front of the astragalus and the anterior part of the os calcis moves outward from beneath the astragalus and a space exists between the sustentaculum and the scaphoid and the heel is really everted.

The wounds are closed and a plaster cast extending over the flexed knee is applied with the foot in the best position the circulation will allow but not overcorrected.

1. Brockman, E. P.: Congenital Club-Foot (Talipes Equinovarus), New York, William Wood & Co., 1930.

In ten days or two weeks the cast is removed and the foot further corrected, if desired. A tenotomy of the achilles is performed now, if necessary, and a new cast applied, allowing the stitches to remain for another two weeks. At the end of the second month the cast is removed, and walking is allowed. Ordinary shoes are worn, physical therapy and instruction in walking are given, and a night splint is applied when necessary.

By gentle dissection the amount of fibrous tissue formed is less than one would suppose from the rather large area exposed. By carrying the incision to the bone and reflecting all the soft tissue *en masse,* one preserves all the main vessels, nerves, tendons and tendon sheaths on both the dorsum and plantar surfaces and free access is had, which allows division of all resisting ligaments.

Unless some extraordinary malformation presents itself, roentgenograms of clubfoot are taken very rarely. Since performing the operation described, I have not been able to get roentgenograms made of all these feet before and after surgery, but I have been fortunate enough to get a series of plates at different ages.

Besides the deformity presented, an interesting and peculiar finding has been noted. Admitting that the bones in a clubfoot are usually less developed than those of a normal foot of the same age, I have observed that the scaphoid is far behind all the other bones.

According to Camp and Cilley,[2] the os calcis, astragalus and cuboid are normally visible in roentgenograms at birth (fig. 2). The external cuneiform presents itself at 1 year of age, the internal at 3½ years and the middle cuneiform and scaphoid at 4 years of age. In some of these patients with clubfoot who were operated on, the scaphoid was not visible at 6 years of age, although the other bones were roentgenologically visible.

Fig. 5.—M. B., aged 9 years, with relapsed clubfoot before operation.

Especially was this impressive when a unilateral case showed a well formed scaphoid in the normal foot and no sign of one in the roentgenogram of the operated foot. Surgery in this case was done at 2 years of age and the roentgenograms were taken at 6 years.

The thought comes to mind whether the delayed ossification is caused by manipulation and operative procedures or whether sometimes in clubfoot the delayed ossification and relatively soft structure is a cause of or agent in relapse when closed methods were thought to be efficient. From the few cases of which I have roentgenograms it is not possible to draw any definite conclusions. This delayed ossification, however, may account for the relatively shorter internal border in clubfoot and may also fail to give enough wedging action to hold the forefoot outwardly rotated at the midtarsal joint.

As yet it has not been possible to follow these cases long enough to watch the development of the ossification with a series of roentgenograms, but it will be an interesting complementary observation. However, it is known that the case is not a congenital absence of the scaphoid because the cartilaginous body of this bone has been observed in each case at operation.

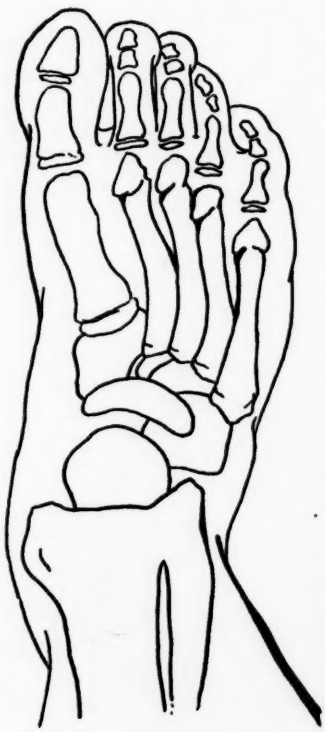


Fig. 6.—M. B., aged 11 years, two years after operation. There is a reduction of the scaphoid on the astragalus and development of the tarsals.

CONTRAINDICATIONS

The small size of the region to be explored and the large amount of fat in the sole of the foot of infants are definite contraindications against open operations before 3 years of age. These difficulties are absent in older children.

Open approach is very difficult and often impossible in the very rigid foot, such as seen in arthrogryposis with extreme shortening of all the soft parts on the inner border of the foot, as the internal cuneiform and first metatarsal may entirely hide the scaphoid and the small size of these structures prevents the replacement of the head of the astragalus.

CONCLUSIONS

Early manipulations cure about half of the cases of clubfoot in infancy.

Repeated manipulation and tenotomy of the achilles and other tendons and plantar structures will correct many more cases.

There remains 19 per cent of the cases which are rigid and, after repeated manipulations, show some improvement in appearance, but the head of the astragalus is still palpable in dorsiflexion and the heel held in some varus. This is the type of foot which is not fully corrected and readily relapses. The subluxation of the astragaloscaphoid joint has not been reduced.

The open operation is much to be preferred to repeated severe manipulations with repeated tenotomies or osteotomy in these relapsed cases, as one can by this method very definitely loosen the tarsal bones and place the forefoot on the head of the astragalus and at the same time replace the os calcis and evert the heel.

Osteotomy of the tibia with rotation of the distal fragment in relapsed cases produces one deformity to cover another and, while improving the appearance some, adds little to the function of the foot.

As bone operations rarely give a really satisfactory result and should seldom be done before puberty, this

2. Camp, J. D., and Cilley, E. I.: Diagrammatic Chart Showing Time of Appearance of the Various Centers of Ossification and Period of Union, Am. J. Roentgenol. **26:** 905 (Dec.) 1931.

ligament operation finds its greatest field of usefulness in the relapsed rigid clubfoot of early childhood.

I feel that open operation, except in the very young and very rigid feet, has been of great assistance in correcting the relapsed clubfoot of early childhood.

421 Michigan Street.

ABSTRACT OF DISCUSSION

DR. HAROLD A. SOFIELD, Chicago: I have been using an incision rather similar to Dr. Chollet's since 1930 and to the present have used it in forty-seven cases. The incision is made on the inside of the foot rather than the lateral side and extends from the medial malleolus down over the internal cuneiform bone. Often a second incision is made along the plantar surface to free the plantar fascia. After the plantar structures are loosened, the internal cuneiform is separated from the scaphoid, and the scaphoid from the astragalus. Then the scaphoid is rotated laterally around the head of the astragalus. This rotation seems to have a great deal to do with the correction. In the forty-seven cases I have had four relapses so far. There is a supplementary treatment which I often employ after the operation. This consists of a plaster cast applied in two sections, extending from above the bent knee to the toes. The parts are separated just below the ankle joint and felt is placed along the edges. Incorporated in the cast are two small strips of aluminum, one extending across the metatarsal region, the other

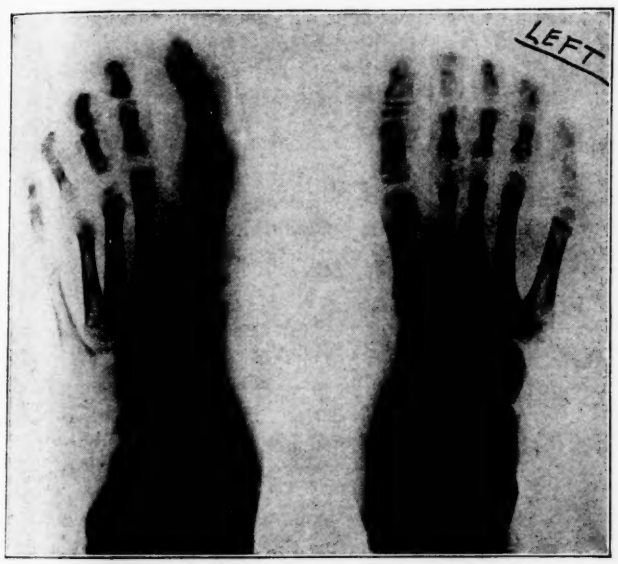


Fig. 7.—S. M., aged 6 years, with unilateral left clubfoot: operation age, 2 years. The scaphoid is not visible in the left foot four years after operation; it is normally developed in the right foot.

on the back of the calf about 2 inches below the knee. Only about 1 inch of each end of the strips extends outside the plaster and they are bent hook shaped. To these hooks elastic bands are attached and by varying the position of the bands almost any direction of pull can be applied. The cast and bands are put on immediately after operation and the foot is suspended from a metal cradle in the bed. The patient, of course, must remain recumbent or in a half sitting position. The elastic traction exerts a constant, easy pull and gradually stretches the tight structures, bringing the foot into an overcorrected position. When the desired position is obtained, a solid cast is applied. By exerting the pressure gradually and steadily there is a minimum amount of trauma to the foot and it is not necessary to subject the patient to radical wrenching and twisting at the time of operation. With the elastic traction the desired position of overcorrection can be obtained in from two to ten days. Previous to employing this method it often took from six to ten weeks to get a satisfactory position. Naturally, it cuts the time of hospitalization to about one-fourth the usual time, and the treatment is essentially a hospital procedure.

DR. FRANK G. MURPHY, Chicago: When I heard about Dr. Chollet's treatment of this type of clubfoot I was interested in seeing the results that he obtained. These results were well demonstrated at a meeting in Toledo two years ago. These feet can be well corrected but the condition will recur unless proper after-treatment is maintained. I found that in these cases the after-treatment has to be maintained for quite a long time by the use of plaster-of-paris walking apparatus or corrective shoes. The correction in which function is good and in which the form seems all right I think should be checked up by roentgenograms following the correction, at intervals of six months, nine months or a year or two years later, to make sure that the deformity does not recur.

LOCAL DIATHERMY IN PERIPHERAL CIRCULATORY DISTURBANCES

SAMUEL PERLOW, M.D.
WITH THE TECHNICAL ASSISTANCE OF KATHRYN BLAKELY
CHICAGO

Heat is a time honored measure in the treatment of peripheral circulatory disturbances of the extremities. It is one of the best known means of relieving pain and limiting the spread of gangrene and ulceration. Diathermy, as it is now known, was recommended in the treatment of articular and circulatory disturbances by Nagelschmidt in 1897, after he demonstrated that high frequency currents produced heat when passed through the tissues.[1] It has been shown that it is possible to produce deeper heat with this agent than by any other means.[2] Heat applied externally cannot penetrate deeply because of the skin resistance and because the circulating blood removes it rapidly. The heat of diathermy is produced within the tissues faster than the heat regulating mechanism can dissipate it. The immediate effect produced is a transitory stimulation of the nervi nervorum followed by a quickened arterial and capillary circulation, and by a vasodilatation of the blood and lymph spaces. This is followed by an increased vascularity between the poles.[1] Kovacs [3] lists the clinical actions of diathermy as (1) active arterial hyperemia and hyperlymphemia, (2) local relief of pain by the heat acting on all the nerve endings, (3) antispasmodic action, and (4) bactericidal action.

In the peripheral circulatory clinic of Michael Reese Hospital all patients with arterial disturbances of the lower extremities are placed on a routine management for a three to four weeks period of observation. The regimen consists of rest, contrast baths and Buerger's exercises. Tobacco smoking is stopped, and local diathermy treatments of one hour each are given twice a week to each extremity. If the patient begins to improve, we continue this treatment. If there is no improvement, we resort to the more radical forms of therapy, as typhoid vaccine or hypertonic salt solution intravenously, nerve blocks and the like. We have found that almost all cases of arteriosclerotic ischemia without gangrene, and a few of the mild cases of thrombo-angiitis obliterans, are improved by this management both subjectively and objectively.

PROBLEM AND METHOD

This investigation was undertaken to determine the value of diathermy and the part it plays in the improvement. A series of various types of cases was tested.

From the Peripheral Circulatory Clinic and the Department of Physiotherapy of the Michael Reese Hospital.

1. Kobak, Disraeli: Diathermy in Medicine and Surgery, Illinois M. J. **47**: 276-284 (April) 1925.
2. Coulter, J. S.: Medical Diathermy, J. A. M. A. **98**: 1987-1991 (June 4) 1932. Christie, R. V., and Binger, C. A. L.: Experimental Study of Diathermy: Evidence of Penetration of High Frequency Currents Through Living Body, J. Exper. Med. **46**: 715-734 (Nov.) 1927.
3. Kovacs, Richard: Diathermy—Its Physics and Clinical Indications, M. J. & Rec. **124**: 631-634 (Nov. 17) 1926.

Pulsations of the larger arteries were graded, the skin temperatures were taken and histamine skin tests were made to determine local circulatory efficiency before and one-half hour after diathermy was given. The Cuff and plate electrodes were used; the cuff was placed around the thigh just above the knee and the plate under the anterior half of the foot and the toes. The two extremities were treated at the same time by using double electrodes. A current of from 750 to 1,000 milliamperes was employed in most cases. In a few debilitated individuals, 600 milliamperes was all that could be given without discomfort.

The controls for this investigation were the previous histories of the patients tested. In each case there was a history of long standing disability in spite of various types of treatment. The results are summarized in tables 2 and 3.

In order to determine whether the rise in the skin temperature and the improvement in the skin reaction to histamine were due to the direct action of the diathermy in heating the tissues or whether they were due partly to relief of the vasospasm which accompanies all types of arterial disease, a few individuals with normal circulation were tested. The results are shown in tables 2 and 3.

TABLE 1.—*Protocol of Case 17: Arteriosclerotic Ischemia of Lower Extremities* *

	Pulses	Before Diathermy 3/26/32	After Diathermy 3/26/32	6/2/32
Right:	Femoral	++	++	++
	Popliteal	+	+	+
	Dorsalis pedis	+0	+	+
	Posterior tibial	+0	+	+
Left:	Femoral	++	++	++
	Popliteal	+	++	++
	Dorsalis pedis	+	+	+
	Posterior tibial	+	+	+
	Skin Temperature			
Right:	Above knee	32.6 C.	34.2 C.	31.8 C.
	Below knee	32.4	34.0	31.6
	Above ankle	32.2	37.2	31.4
	Dorsum of foot	32.4	36.0	30.6
	Ball of foot	30.8	34.4	29.4
	End of big toe	30.0	33.4	28.4
Left:	Above knee	32.4	34.0	32.0
	Below knee	31.8	34.2	31.8
	Above ankle	31.4	37.0	31.8
	Dorsum of foot	31.2	36.0	30.8
	Ball of foot	30.2	33.8	30.0
	End of big toe	28.4	33.0	28.6
	Histamine Test			
Right:	Above knee	++	++	+++
	Below knee	+	+	++
	Above ankle	+	++	++
	Dorsum of foot	+	++	+++
Left:	Above knee	+	++	+++
	Below knee	+	+	+
	Above ankle	+	++	+
	Dorsum of foot	0	++	+++
Mouth temperature		37.0	37.2	37.1
Room temperature		22.0	22.0	21.6

* Treatment consisted of diathermy by means of double cuff and plate, with a current of 1,000 milliamperes. Before treatment was started the patient had pains in the calves of the legs and in the ankles after walking one or two city blocks. After two months of diathermy he was able to walk six blocks before the pains started.

COMMENT

The immediate results of the diathermy are as follows: In cases of arterial disturbance, 59 per cent of the nonpulsating vessels were made to pulsate, and the pulsations of 45 per cent of all open vessels were improved as compared with improvement in only 20 per cent of the vessels in normal subjects. The average maximum rise in the skin temperature in cases of circulatory disturbance was 5.3 degrees C., as compared with 3.7 degrees C. in the normal subjects, and the average rise in the skin temperature of the big toe was 3.6 degrees C., as compared with 2.2 degrees C. in normal persons. The peripheral circulation as determined by the skin reaction to histamine was improved in 65 per cent of the cases of arterial disease and in only 25 per cent of the normal cases.

The rise in the skin temperature was most marked about the foot and ankle. There was no noticeable injury to the atrophic skin by the rise in the skin temperature. With all these changes locally, the general effect was negligible, as was shown by the slight rise in mouth temperature.

TABLE 2.—*Summary of Results After Half an Hour of Diathermy* *

Case	Name	Diagnosis	Diathermy, Milliamperes	Arteries: Closed Vessels: Number	Arteries: Closed Vessels: No. Opened	Arteries: Open Vessels: Number	Arteries: Open Vessels: No. Improved	Skin Temperatures: Minimum Rise, C.	Skin Temperatures: Maximum Rise, C.	Skin Temperatures: Average Rise Big Toe, C.	Histamine Test Improved on Foot	Rise in Mouth Temperature, C.
1	H. N.	Thrombo-angiitis obliterans	900	3	3	3	2	0.2	7.0	6.5	++	0.0
2	L. E.	Thrombo-angiitis obliterans	900	0	0	6	2	0.4	6.2	4.7	0	0.4
3	A. S.	Thrombo-angiitis obliterans	1,000	6	0	0	0	0.0	1.8	1.6	0	0.4
4	M. G.	Thrombo-angiitis obliterans	750	0	0	6	3	0.0	5.9	3.3	+	0.4
5	A. K.	Thrombo-angiitis obliterans	1,000	0	0	6	0	1.0	2.2	2.0	0	0.2
6	O. G.	Thrombo-angiitis obliterans	1,000	1	1	5	3	0.4	6.2	6.2	+	0.4
7	M. L.	Thrombo-angiitis obliterans	800	0	0	6	0	0.0	7.2	6.1	+	0.6
8	M. O.	Thrombo-angiitis obliterans	750	2	2	4	2	0.2	4.4	1.5	+	0.0
9	A. M.	Thrombo-angiitis obliterans	750	0	0	6	3	0.0	4.4	2.6	+	0.2
10	J. G.	Thrombo-angiitis obliterans	750	1	1	2	1	1.0	7.0	1.0	+	0.4
11	L. O.	Arteriosclerosis	600	1	1	2	2	1.0	4.6	4.0	0	0.0
12	H. S.	Arteriosclerosis	800	0	0	0	3	0.0	6.5	1.8	++	0.0
13	M. B.	Arteriosclerosis	800	2	1	4	1	1.0	3.4	1.3	+	0.0
14	A. S.	Arteriosclerosis	800	0	0	6	5	0.0	4.6	3.2	++	0.4
15	A. K.	Arteriosclerosis	1,000	6	0	0	0	1.0	6.9	3.0	0	0.2
16	D. B.	Arteriosclerosis	1,000	2	2	4	1	0.2	3.2	1.7	0	0.6
17	L. S.	Arteriosclerosis	1,000	2	2	4	1	1.4	5.6	4.2	++	0.4
18	V. C.	Arteriosclerosis	750	4	4	2	1	1.4	6.0	5.6	+	0.0
19	L. R.	Raynaud's disease	900	2	2	4	3	0.8	8.6	8.2	+++	0.0
20	S. M.	Raynaud's disease	1,000	0	0	6	4	0.9	4.4	3.3	0	0.0
21	S. D.	Normal	750	0	0	6	5	0.4	3.0	0.5	+	0.0
22	J. C.	Normal	750	0	0	6	4	0.0	7.4	5.4	0	0.0
23	M. B.	Normal	1,000	0	0	6	0	0.0	2.8	0.8	0	0.4
24	L. M.	Normal	900	0	0	6	0	0.2	3.0	1.5	0	0.8
25	C. C.	Normal	750	0	0	6	0	1.2	7.4	6.8	0	0.0
26	J. H.	Normal	900	0	0	6	1	0.0	3.0	0.7	0	0.2
27	B. R.	Normal	750	0	0	6	0	0.0	2.0	1.5	+	0.4
28	S. G.	Normal	750	0	0	6	0	0.0	1.4	0.8	0	0.2

* Only the popliteal, dorsalis pedis, and posterior tibial arteries were considered here because they were in the area given diathermy. Two subjects (10 and 11) had one extremity only.

patients were given diathermy treatments twice each week for a period of two months and were then tested again (table 1). No other form of therapy was given during this time. In all cases the extremities were exposed to the room temperature for twenty minutes before the initial readings were made. The diathermy was administered with the patient in a sitting position.

in the mouth temperature or no change at all in some of the cases. This is of considerable importance in view of the fact that many of these cases are debilitated and show some myocardial degeneration.

The opening of 58 per cent of the closed vessels in the cases of arteriosclerosis is definite evidence that there is a high degree of vasospasm in those cases to an extent not previously known. This fact and the greater rise in temperature in the cases of circulatory disturbances in the normal subjects indicate that relief of vasospasm is one of the means by which diathermy improves the circulation and heats the tissues.

TABLE 3.—*Summary of Results from Table 2*

Diagnosis	Closed Vessels Opened, per Cent	Open Vessels Improved, per Cent	Average Temperature Rise		Histamine Test Improved on Dorsum of Foot, per Cent
			Maximum, C.	Big Toe, C.	
Thrombo-angiitis obliterans.	53	36	5.2	3.6	70
Arteriosclerosis.....	58	50	5.1	3.1	62
Raynaud's disease.....	100	70	6.5	5.7	50
Average in arterial cases.....	59	45	5.3	3.6	65
Normal subjects.....	..	20	3.7	2.2	25

Most of the subjective effect of the diathermy was temporary and lasted from twenty-four to forty-eight hours, but after two months of treatment there was permanent improvement both subjectively and objectively in six of the eight cases of arteriosclerotic ischemia and in one of the ten cases of thrombo-angiitis obliterans. Other investigators have had similarly good results with diathermy in cases of arteriosclerosis.[4]

The reasons for the permanent improvement in the arteriosclerotic cases and the excellent immediate but poor permanent results in the cases of thrombo-angiitis obliterans may lie in the pathogenesis of the two conditions. Arteriosclerosis is a chronic degenerative condition and the narrowing of the vessels takes place over a period of years. The tissues may have become accustomed to the slow diminution of the blood supply, and slight improvement in the collateral circulation may be sufficient to restore the normal functions. Thrombo-angiitis obliterans is a more acute inflammatory disease. New vessels or parts of vessels are continually being thrombosed, resulting in a relatively sudden removal of the blood supply from the tissues. Diathermy produces excellent immediate results in this condition, probably by relieving the vasospasm, but in most cases the disease involves the primary vessels faster than the development of the collateral circulation by diathermy.

The two cases of Raynaud's disease tested showed definite immediate relief of vasospasm, but there was no permanent improvement in the condition.

CONCLUSIONS

There are not enough cases in our series to warrant a comparison between diathermy and other types of treatment in peripheral circulatory disturbances. Our results show that:

1. Diathermy locally is of definite value in the treatment of peripheral circulatory disorders, especially in arteriosclerotic ischemia without gangrene.
2. Diathermy improves the circulation largely by relieving vasospasm.

185 North Wabash Avenue.

4. Flagstad, A. E.: Diathermy in Vascular Circulatory Disturbances and Arthritis, Minnesota Med. **8**: 288-293 (May) 1925. Barbash, Samuel: Successful Treatment of Gangrene with Special Reference to Diabetic Type by Medical Diathermy, J. M. Soc. New Jersey **27**: 933 (Dec.) 1930.

POSTVACCINAL ENCEPHALITIS

PROF. DR. E. GORTER
LEYDEN, THE NETHERLANDS

A study of the different diseases encountered in succeeding centuries is of the utmost importance. It has to overcome tremendous difficulties, which are mostly to be attributed to differences in methods of observation and study. But in part the difficulty lies in the more objective character of the symptoms in certain diseases, and I believe that to this group belongs postvaccinal encephalitis.

Most of the symptoms and the development of this complication of vaccination are so striking that it is extremely improbable that the predecessors of modern clinicians who were much better observers than the latter, overlooked its existence.

I can illustrate this by citing from an old booklet on vaccination, written by a doctor named Ranque and edited in Paris in 1801, what was said concerning the cerebral complications of variolation. This furnishes direct proof that symptoms such as those now observed after vaccination, which occurred after the use of another mode of protection against smallpox, did not escape the attention of medical men.

Ranque spoke of comatose conditions that are often encountered during the period of the fever. On page 33, in describing the technic of incisions, he mentioned the occurrence of terrific convulsions. On page 44 he indicated a method of treatment for cerebral complications, which are often dangerous; this consisted in taking the patients out of bed and placing them in the fresh air.

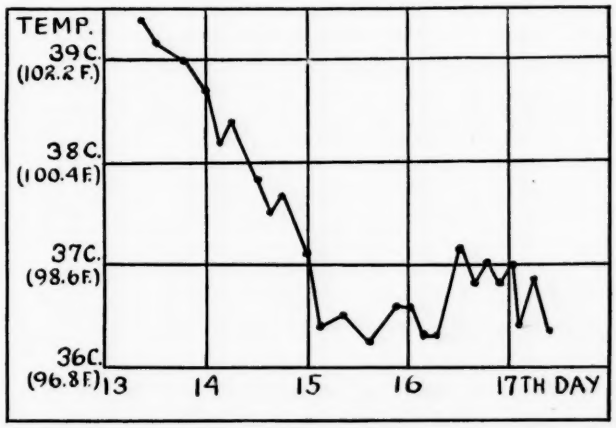


Chart 1.—Temperature curve in case of postvaccinal encephalitis.

In typical cases of postvaccinal encephalitis the symptoms are striking. I cite the following observation as an example:

REPORT OF A CASE

On the eleventh day after vaccination on the arm, a boy, 3 years of age, presented a rise in temperature to 104 F. He vomited once and was not drowsy or sleepy. The onset was quite sudden, although several days before, he had been somewhat drooping and low-spirited.

On his admission to the hospital three typical crusts were found on the vaccinal lesions on the arm, with a group of enlarged lymph nodes in the corresponding axilla. The general impression was not unfavorable. The child was not drowsy. Slight twitches in the right arm were observed, and also a

Read before the Section on Pediatrics at the Eighty-Fourth Annual Session of the American Medical Association, Milwaukee, June 14, 1933.

certain degree of strabismus, which was apparently not due to muscular paralysis. Other signs of a cerebral lesion were not distinct, but became so on the second day of his stay in the hospital, the twelfth day after vaccination. Drowsiness developed, with grinding of the teeth and sweating. The Kernig and Brudzinski signs were positive. There was distinct rigidity of the neck. The legs were somewhat hypertonic, and the Babinski reflex was present. The eyegrounds showed no abnormalities.

On lumbar puncture the fluid was under normal pressure (20 cm. of water); there was no globulin, but the number of cells was increased to 180 per cubic millimeter; these were mostly lymphocytes. The sugar content was 0.067 per cent. The blood count was only slightly different from normal: leukocytes, 9,800; lymphocytes, 35 per cent; monocytes, 5 per cent; red nucleated neutrophils, 10 per cent; segmented nucleated neutrophils, 49 per cent, and eosinophils, 1 per cent.

The temperature was high on the first day, but was normal afterward (chart 1).

The course of the disease was favorable; improvement began on the third day after admission, all symptoms gradually disappearing. Drowsiness was last noted at the beginning of the second week, and on his departure from the hospital the patient behaved normally, showing no sign of a cerebral lesion.

TABLE 1.—*Monthly Distribution of Cases of Postvaccinal Encephalitis*

Year	January	February	March	April	May	June	July	August	September	October	November	December	Total No. Cases
1923	..	..	..	..	..	1	..	..	..	..	..	..	1
1924	..	..	2	1	..	..	1	..	2	..	1	..	7
1925	2	3	17	3	..	1	..	1	1	1	..	..	29
1926	..	2	5	1	1	4	1	2	5	3	..	..	24
1927	..	3	10	4	2	4	4	..	3	2	2	2	36
1928	1	..	1	2	2	1	1	..	1	2	..	..	11
Total	3	8	35	11	5	11	7	3	12	8	3	2	108
No. of vaccinations	5	9	24	13	9	8	7	5	9	9	5	5	108

TABLE 2.—*Distribution of Cases from 1924 to 1927 According to District*

	Number of Vaccinations	Number of Cases	Cases per 10,000 Vaccinations
Zealand	19,623	9	4.5
Groningen	34,194	14	4.1
Friesland	33,967	10	2.9
North Holland	108,970	22	2.0
Guelders	69,970	12	1.8
South Holland	157,166	18	1.1
Overisel	41,757	2	0.5
Utrecht	32,170	3	0.9
North Brabant	88,584	5	0.6
Drente	23,707	0	...
Limburg	53,233	1	0.2
Total	657,161	96	1.5

COMMENT

This case represents a typical form of the disease, although cure was more rapid than usual. In not less than one third of all typical cases of the disease a fatal issue is observed. Symptoms of drowsiness develop into coma, and death results from paralysis of the centers of respiration and circulation. The exact histologic picture of the cerebral lesion is therefore known.

The lesions are not altogether pathognomonic of postvaccinal encephalitis, as Professor Bok and other observers have said, because they are also met with in other forms of encephalitis due to other infections or intoxications, e. g., smallpox, chickenpox, measles and tetanus.

I return now to clinical observations, because it is important to draw attention to the various forms of the disease, to more or less exceptional symptoms and to other clinical peculiarities before entering into a discussion of the pathogenesis.[1]

One of the most constant facts with regard to this type of encephalitis is the incubation period. In 108 cases recorded before 1929, this period was strikingly constant, the onset usually being observed on the tenth, eleventh or twelfth day after vaccination (chart 2). It was often related in the history that the child was ill on the seventh or eighth day with fever and agitation but recovered more or less completely, so that the encephalitis was separated from the first period of disease by several days of relative well-being. This course of events is, however, not seen regularly, because either the initial fever disappears on the seventh or eighth day or it progresses without interruption into the fever due to encephalitis.

Among the symptoms headache was rather frequent and was often associated with vomiting. Drowsiness

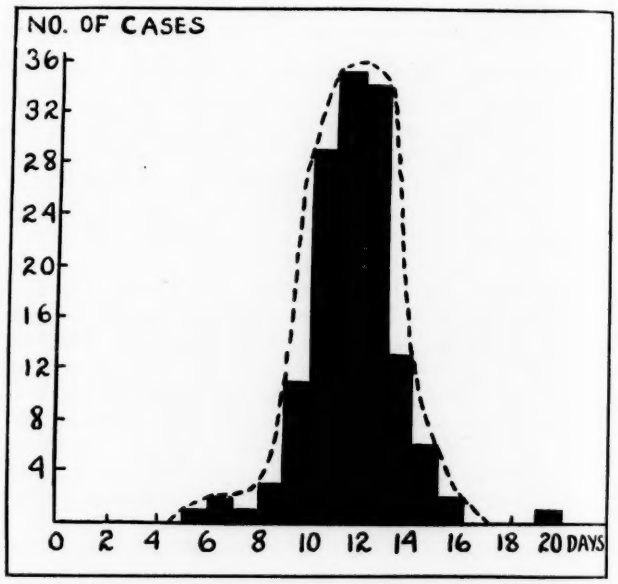


Chart 2.—Incubation period of postvaccinal encephalitis

and even coma were often observed, whereas convulsions did not occur as frequently. Often meningitis was indicated by rigidity of the neck and a Kernig sign, and examination of the spinal fluid frequently confirmed the diagnosis of meningeal invasion by the finding of a high cell count, elevated pressure or a high sugar content. Paralysis of the ocular muscles or of the facial nerve or disorders of speech and deglutition were occasionally observed, whereas in other cases paralysis of the muscles of the legs and arms was present. Also in cases without paralysis the Babinski and similar reflexes were often seen, and the tendon reflexes frequently showed some abnormality.

The disease has a rather unfavorable prognosis. Of the well developed cases almost one third have a fatal issue. Death usually occurs within a week after the onset of the disease.

In striking contrast with the bad prognosis as to life is the good prognosis with regard to sequelae. It is most exceptional if symptoms of a cerebral lesion are seen after the disappearance of acute symptoms, and

1. Data are from the report of a special committee.

there is some reason to doubt the diagnosis of postvaccinal encephalitis in the rare cases in which a defective intelligence or hemiplegia remains after a disease resembling postvaccinal encephalitis. These characteristics are completely different from those of other forms of encephalitis or meningitis, whereas they are typical of a disease like tetanus.

EPIDEMIOLOGY

Monthly Distribution.—It was interesting to study the course of postvaccinal encephalitis and to see how it spread among Dutch children of preschool age and older.

TABLE 3.—*Correlation of Periods of Exceptionally High Incidence and Strains of Vaccine*

Period	No. of Cases	Strains
March, 1925	17	15/24 H
April-July, 1927	14	10/25 9/26 13/26 12/27 13/27 H
March, 1927	10	6/26 A

Whereas atypical or doubtful cases of the disease possibly occurred earlier, the first definite case with all the typical symptoms was observed in June, 1923. This was the only case recorded that year. In 1924 there were seven cases, two of which occurred in March, the month when a great number of vaccinations were performed, owing to the fact that at the beginning of April children were sent to school for the first time and were obliged, at that time, to show a certificate that they had been vaccinated against smallpox.

In 1925 a real outbreak of the disease occurred in March, when seventeen cases of the twenty-nine recorded that year were seen. This number is far too great to be explained by the greater number of vaccinations; it is, as a matter of fact, four or five times as large as it should be.

In 1926, only five cases of the total of twenty-four occurred in March, but in 1927 ten cases were seen during March, and this number is about twice the average in relation to the number of vaccinations. The numerous cases of encephalitis in 1927 (thirty-six) were more evenly distributed, although April and July showed somewhat more than the average number.

TABLE 4.—*Instances of More Than One Case on the Same Date in the Same Village*

Cases	Province	Date	Strain
15 and 16	Guelders	March 7, 1925	15/24 H
18 and 20	North Holland	March 10, 1925	15/24 H
40 and 41	Friesland	March 2, 1926	20/25 A
64 and 65	South Holland	Feb. 17, 1927	3/26 R
70, 72 and 73	Guelders	March 23, 1927	6/26 A
86, 87 and 88	Zealand	July 2, 1927	12/27 H

A decrease in the number of cases occurred during 1928, entirely owing to the fact that compulsory vaccination was abandoned.

Thus during the period studied there was an irregular distribution of cases over the months of the year, which is not explained by the difference in the number of vaccinations.

Local Factor.—The same irregularities were observed in the distribution over the different parts of The Netherlands, although with the exception of Groningen and South Holland, the whole country obtained the vaccine from the central institute in Amsterdam. There was a certain predilection for some provinces, whereas others were almost or completely free from cases. The number of cases in certain provinces was from two to three times the average, whereas in others it was out of all proportion to the number of vaccinations.

Another interesting point is that age appeared to have some influence, as cases were rarer among children up to 2 years of age than among older children. It is, however, difficult to say whether this factor was real, because the total number of children under 2 years of age was very small, and a diagnosis of encephalitis in this group offered greater difficulties.

Type of Vaccine.—The list of irregularities should be completed by a survey of the encephalitis occurring in children vaccinated with different strains of vaccine. The record of different strains of vaccine used all over the country gives a rather irregular distribution of cases.

A special strain (15/1924) caused an unusually large number of cases, but it was used only in March, 1925, and was the only vaccine employed during that period. Vaccination with strain 6/1926 also was followed by encephalitis in a rather large number of instances; this vaccine was distributed only in March, 1927, and was the sole vaccine used.

It is necessary to mention also that in six instances more than one case occurred on the same day in the same small village after vaccination with the same vaccine. But one must not overlook the fact that most of these cases occurred during March, 1925, and March, 1927 (or July, 1927), which are the periods of high incidence of the disease.

TABLE 5.—*Influence of Pigment on Reaction to Vaccination* *

Animals	Maximum Reaction After, Days	Edema	Necrosis	Generalization	Immunity After, Days	
Black	4	−	+	±	4.2	7
White and gray	6.5	++	+++	++	4.6	6
Irradiated	4.7	±	±	−	3.3	6
Nonirradiated	6.2	+++	++	±	4.6	6

* Results of Van der Schaaf.

From the last-mentioned facts there seem to be two possible conclusions:

1. The irregularities in the distribution of cases are due to local and seasonal influences.
2. The irregularities result from the use of a more dangerous vaccine during the months and in the regions of highest incidence.

It is impossible to decide between the two possibilities, notwithstanding a large amount of investigation on the pathogenesis of this type of encephalitis. In favor of the first hypothesis is the fact that cases of encephalitis have developed following the use of vaccines imported from other countries.

Differences in the frequency of the disease according to locality and time are met with in many other infectious diseases and are ascribed by some observers to a lack of sunshine. The predominance of cases during March would fit in with this explanation. Also some experiments performed in my laboratory by Dr. Van der Schaaf tend to support this view.

In comparing (naturally or artificially) pigmented animals with white animals in regard to their local reaction, he found that the maximum of the reaction was more quickly reached, local edema and central necrosis were much less pronounced, generalization was less frequent and immunity was obtained at an earlier period in black rabbits and in rabbits whose skin had been

pigmented by exposure to ultraviolet radiation than in white nonirradiated animals. Such experiments might indicate a relation between pigmentation and severe infections or complications.

But the other hypothesis, that local and seasonal irregularities result from a stronger tendency of certain strains than of others to produce encephalitis has an equal right to careful consideration.

I have often studied the difference between various lots of vaccine in regard to the production of sterile encephalitis in rabbits. Some strains easily produce

TABLE 6.—*Influence of Staphylococci on Results of Vaccination* *

Vaccine	Maximum Reaction After, Days	Edema	Central Necrosis	Generalization	Immune After, Days	No. of Animals
Calf (Leyden)....	4.2	1	3	No	3.1	11
Amsterdam.....	4.0	1	4	No	4.5	7
Neurolapine.....	6.0	21	21	12	4.5	25
Neurolapine and staphylococcus..	4.2	1	5	3 (±)	4.3	20
Neurolapine and other microbes..	4.6	2	1	3 ±	4.0	8

* Results of Van der Schaaf.

this encephalitis following direct injection into the brain, whereas others do not. The different types of vaccine show other differences in behavior in animal experiments. These differences are of the same order as those noted in the study of the influence of pigmentation. There is some reason to believe that part of them are due to the association of living staphylococci with the vaccine. These organisms have, indeed, a distinctly beneficial influence on the type of reaction of some strains of vaccine, such as neurolapine.

But the question arises, do these differences in experimental results correspond to the variation in the

TABLE 7.—*Results Showing No Influence of Dead Staphylococci, Intravenously Injected Staphylococci and Pus on Reaction to Vaccination* *

Vaccine	Maximum Reaction After, Days	Edema	Necrosis	Generalization	Immunity After, Days	
Neurolapine.....	6.6	9	9	7	5.6	9
Neurolapine and pus....	7	4	4	4	—	4
Neurolapine and staphylococci intravenously..	6	3	3	3	4.5	3
Neurolapine and staphylococci (heated to 56 C.).....	5.3	1	2	4 ±	5.1	5
Neurolapine and staphylococci (heated to 95 C.).....	5.3	5	5	5	5.4	5

* Results of Van der Schaaf.

occurrence of encephalitis in vaccinated children? This is not known because the number of children who have been vaccinated with the "mild" type of vaccine is too small.

At present the problem is based more or less on whether one believes that vaccination itself is the direct cause of the encephalitis or that the encephalitis is due to a revival of a latent virus.

The question can be formulated, therefore, clinically as follows: Is postvaccinal encephalitis comparable to herpes—that is, is it due to a virus always present in the body and acting only when another disease has prepared the ground—or is it comparable to the nephritis complicating scarlet fever?

I should like to advocate the last theory. Clinicians are familiar with the idea of a complicating organic disorder in an infectious disease without the assumption that a secondary virus is always present as a causative factor. There is no reason to make an exception of postvaccinal encephalitis unless it can be proved that another virus exists, as in herpes. Like many other complications, encephalitis can follow several infections (e. g., measles), and the lesions found in this form of the disease are much like those of the postvaccinal form.

I do not see any reason to admit a different mode of causation for postvaccinal encephalitis than for a large group of other complications observed every day in the clinic.

A certain difficulty is that vaccinal virus is hardly ever found in the cerebrospinal fluid in postvaccinal encephalitis. However, one may cite many examples of severe intoxication of cerebral centers in which autopsy does not reveal the toxin locally, e. g., tetanus or diphtheria toxin. Moreover, Herzfeld recently succeeded in tracing vaccine virus in the spinal fluid of several children with postvaccinal encephalitis. It was not found in the cases reported here.

In my opinion one is as fully informed as to the causation of postvaccinal encephalitis as to that of other complications of infectious diseases (purulent meningitis, nephritis), etc.; however, knowledge of these complications is incomplete.

HEMOCHROMATOSIS

REPORT OF A CASE

RICHARD GOTT, JR., M.D.
LOUISVILLE, KY.

Hemochromatosis is a chronic disease characterized by the presence of large quantities of hemofuscin and hemosiderin in the tissues, particularly in the liver and pancreas. The iron in this pigment is apparently of both endogenous and exogenous origin. The exact mechanism of this dysfunction of iron metabolism is, as yet, not known. Mallory [1] has produced a pigment cirrhosis of the liver in animals by means of the prolonged administration of copper salts and also finely divided metallic copper. In a large number of human cases there has been a history of chronic copper poisoning either through occupational contact or through the prolonged ingestion of beverages or foods containing copper.

The following case has been under observation for almost six years, during which time some interesting features have been observed, particularly those associated with the diabetic manifestations:

REPORT OF CASE

A white man, aged 42, single, a cabinet maker, admitted to the Louisville City Hospital, Jan. 10, 1927, complained of weakness, excessive thirst and polyuria of three weeks' duration. His weight had fallen from 140 to 120 pounds (63.5 to 54.4 Kg.) during this time. A few days previously his appetite had become poor and a headache had developed. His previous health was described as good, although he had been bothered intermittently for several years with mild attacks of indiges-

From the Departments of Medicine and Pathology, University of Louisville School of Medicine.

1. Mallory, F. B.; Parker, Frederic, Jr., and Nye, R. N.: Experimental Pigment Cirrhosis Due to Copper and Its Relation to Hemochromatosis, J. M. Research **42**: 461-490 (Oct.) 1921. Mallory, F. B.: Hemochromatosis and Chronic Poisoning with Copper, Arch. Int. Med. **37**: 336-362 (March) 1926.

tion described as "gas in the stomach" and "heartburn." He stated that he did not use alcohol, and nothing unusual was discovered concerning his habits.

The patient was well developed but poorly nourished and looked his stated age. His respirations were increased in depth and there was an acetone odor to his breath. His temperature was 98 F.; pulse, 80; respiration rate, 26; blood pressure, 90 systolic and 60 diastolic. There was slight deviation of the nasal septum. His upper teeth had all been removed. The lower teeth were carious and the gums were infected. The liver was not described as enlarged, although the subsequent course and observations indicate that it probably was. No abnormality in the appearance of the skin was described. The urine was strongly positive for sugar, acetone and diacetic acid. The blood sugar was 0.248 per cent and the carbon dioxide combining power of the blood was 31 volumes per cent. The red blood count was 3,800,000, and hemoglobin, 75 per cent. The white cell count was 6,200, with a normal differential count.

The acidosis responded readily to treatment with insulin and sodium bicarbonate. Considerable difficulty in stabilizing the blood sugar was encountered. It usually varied from 0.2 to 0.3 per cent, and the urine was frequently positive for sugar. Attempts to lower the blood sugar level further invariably resulted in insulin reactions, which were corrected promptly by dextrose given either by mouth or intravenously. During his stay in the hospital a superficial infection of the left hand developed, which responded readily to treatment. He was discharged, April 18, on a maintenance diet, receiving 26 units of insulin daily.

Some phases of his disease were encountered during most of his subsequent admissions. The same difficulty in stabilizing the blood sugar that has been mentioned was always encountered. The blood sugar was as high as 0.465 per cent, but usually varied from 0.2 to 0.3 per cent. His acidosis was always corrected over a period of from six to twenty-four hours, requiring from 100 to 300 units of insulin, depending on the severity of the acidosis. The acidosis responded promptly to therapy when insulin was used alone or when it was used in conjunction with sodium bicarbonate. His weight remained near 120 pounds. The red blood cell count varied from 3,450,000 to 4,250,000, and the hemoglobin from 70 to 80 per cent. The urine occasionally contained a few pus cells. Kidney function was normal for dye elimination.

The blood Wassermann reaction was negative. The maintenance diet consisted of 40 Gm. of carbohydrate, 70 Gm. of protein and 230 Gm. of fat. He followed this diet fairly well and took the amount of insulin that had been recommended at the time of discharge; however, he did not cooperate in returning to the diabetic clinic, and would come to the hospital only when in considerable difficulty.

His remaining teeth were all removed during subsequent hospitalization.

He was admitted to the hospital again, September 19. He had been unable to obtain insulin during the preceding two weeks and on admission was in moderately severe acidosis. The examiner now recorded that the liver was enlarged almost to the umbilicus; this enlargement was present to about the same degree on all later admissions. The skin was described as bronzed, especially in the region of the neck and shoulders. This bronzing was the subject of considerable discussion during later visits. It was felt by some members of the staff that there was a noticeable decrease in the degree of pigmentation during later admissions; in fact, on the final admission it was difficult to say that there was any abnormality at all in the appearance of the skin.

Roentgen examination of the chest now showed some increase in lung markings; this was thought to be indicative of chronic fibroid tuberculosis. No clinical evidence of activity could be demonstrated. Roentgen examination of the gastrointestinal tract was negative. His course was uneventful following the correction of the acidosis and he was discharged, Feb. 24, 1928, receiving 57 units of insulin daily.

About one week prior to his third admission, March 12, a head cold developed. Four days later, pain began in the left ear and it began to discharge on the day of admission. He was mildly acidotic and pus was flowing through a perforation in the left ear drum. The drum was incised and his condition improved. On the thirty-eighth day of hospitalization a tender area developed in the right gluteal region, which was thought to be a beginning abscess. This subsided, however, and incision was not necessary. On the forty-seventh day of hospitalization, pain again developed in the left ear, and incision of the drum released serosanguineous fluid. The incision had to be repeated a week later, similar fluid being obtained. During the next two weeks he had a low grade fever and tenderness developed over the left mastoid. Roentgen examination revealed destruction of these cells. A simple mastoidectomy was performed, May 3. Cultures from the middle ear and mastoid yielded Streptococcus haemolyticus and Staphylococcus albus. His postoperative course was uneventful and he was discharged, September 16, receiving 45 units of insulin daily.

Ten days previous to his fourth admission, Jan. 7, 1929, a head cold and pain in the right ear developed. The ear began to drain the following day. Examination revealed a perforation in the right ear drum through which serosanguineous fluid was flowing. His diabetic condition was satisfactory. The ear drum was incised, and the patient's general condition improved. He was discharged, February 8, receiving 51 units of insulin daily.

He was readmitted, July 18, complaining of a watery diarrhea of three days' duration. He had eaten little and taken no insulin during this time. He was moderately acidotic. The diarrhea subsided in six days; the stools were watery and foul but contained no blood, mucus or pus. Culture of the feces produced no pathogenic organisms. He was discharged, August 6, receiving 45 units of insulin daily.

August 10, he was readmitted in a mild insulin reaction. His course was uneventful and he was discharged, September 13, receiving 45 units of insulin daily.

Two weeks previous to his seventh admission, Nov. 10, 1930, pain and swelling had developed in the right knee following a slight injury. Roentgen examination revealed changes consistent with infectious arthritis. The knee improved slowly and after six weeks he was allowed to bear weight on it. He was discharged, Jan. 13, 1931, receiving 45 units of insulin daily.

The patient's eighth and final admission was on Dec. 10, 1932. Ten days previously he had contracted a cold and three days later pain and discharge developed in the right ear. He had become steadily worse, and during the two days prior to hospitalization he had eaten little and taken no insulin. He was toxic and in moderately severe acidosis. Pus was flowing through a perforation in the right ear drum. Physical changes at the base of the right lung were consistent with pneumonic consolidation. The acidosis was corrected without difficulty, and the following day his condition seemed much improved. He grew worse during the following two days, however, and died on the fourth day of hospitalization.

AUTOPSY

There was no bronzing of the skin.

The left pleural cavity contained 100 cc. of seropurulent fluid; the right one, 250 cc. of similar fluid.

The heart muscle was light colored and soft. The left coronary was markedly sclerotic, with atheromatous plaques. The left anterior branch was almost occluded. The papillary muscles were atrophic. Sections revealed some sclerotic plaques with a few hypertrophic muscle fibers at the periphery. The larger vessels showed some lipoid deposit with hyperplasia of the connective tissue.

The left lung weighed 720 Gm.; the right lung weighed 1,200 Gm. and was reddish. The increase in weight was due to edema and consolidation, especially in the posterior portion and more marked on the right. Sections revealed the air sacs completely filled with recent inflammatory exudate, consisting of fibrin, leukocytes, serous fluid and some blood. Sections taken from the upper right lobe showed areas of caseous necrosis surrounded by a dense scar tissue infiltrated with lymphocytes, plasma cells and a few endothelial cells. There was an occasional foreign body giant cell. The pleura was covered by a recent firm, fibrinopurulent exudate.

The mucosa of the stomach and bowel was slightly brownish. In sections taken from the stomach and upper part of the small bowel, the surface epithelium appeared sloughed, so it could not be studied. In the deep part of the glands in which the

epithelium was preserved there was a dense deposit of brown pigment in the cytoplasm. A few connective tissue cells of the stroma were similarly pigmented but the leukocytes were not.

The weight of the liver was 1,950 Gm. Just beneath its capsule some dark brown pigment was noted, scattered diffusely. A sectioned surface revealed an abundant amount of similar brownish black pigment. There was some nutmeg mottling. Sections revealed atrophy of the liver cells about the central veins with some sclerosis. There was an abundant deposit of dark brown pigment found between the liver cells, in the cytoplasm of the endothelial cells and also in the liver cells.

The lymph nodes of the mediastinum and also those about the pancreas were slightly enlarged and brownish. Sections revealed an abundance of pigment similar to that found in the liver, especially in the lining cells of the sinuses and in endothelial cells that had infiltrated the lymphoid tissue.

The weight of the spleen was 200 Gm. It was definitely browner than normal and firm in consistency. The capsule was thickened and cartilaginous. Sections revealed an increase in connective tissue with a moderate amount of blackish brown pigment deposited in the cells lining the sinuses and also in endothelial leukocytes.

The pancreas weighed 35 Gm. It was a chocolate brown and slightly firmer than normal. Sections revealed an abundant deposit of brownish black pigment in between the epithelial cells and also in the cytoplasm of many of the cells of the acini. Islands of Langerhans were found with great difficulty. Many of those recognized were small and atrophic. In the islet cells there was an abundant deposit of brown pigment. In localized areas there was some fibrosis about the islets and also about the acini. There seemed to be more pigment, however, in the portions which were not fibrotic. Occasional islets were seen which were surrounded by a zone of scar tissue.

Sections of the suprarenal revealed an abundant deposit of brownish pigment in the epithelial cells and also in the stroma, but it was not recognized grossly. There was some scarring of the stroma.

The kidneys were normal in weight. The capsules stripped readily and were slightly brown. Sections revealed cloudy swelling of the epithelial cells and a slight deposit of brownish pigment in the stroma.

Sections of the brain revealed no pigmentation; only swelling of the nerve cells.

Skin sections did not show pigment deposit.

Smears and cultures of the cloudy pleural fluid revealed pneumococcus type I in pure culture. The same organism was recovered from the purulent exudate of the middle ears.

Special stains were made of the pancreas, liver and lymph nodes to determine the type of pigment. These stains revealed the absence of hemofuscin and the presence of iron in all the granules. This indicates that the pigment was hemosiderin entirely.

Stains and chemical analysis of the liver and pancreas revealed no copper. The qualitative test for copper consisted of digestion of the tissue and precipitation with ammonium sulphide. Quantitative analysis for iron revealed 20.2 Gm. of pure iron in the liver (the normal amount is 0.3 Gm.). No excess of iron was found in the lungs.

COMMENT

The patient's disease evidently began some years previously as hemochromatosis. At the time of death there was an abundance of hemosiderin in the liver, pancreas, lymph nodes and suprarenals. Apparently the pigmentation of the pancreas resulted in necrobiosis of the islet cells, so that there was a deficiency of internal gland secretion, resulting in diabetes.

The immediate cause of death was bronchopneumonia, pneumococcus type I.

The disappearance of the skin bronzing which was thought to be observed in this case is unusual. Boland and Curran [2] have emphasized the lack of dependability of visible skin changes as a means of diagnosis. Accepting the belief that skin changes are a relatively late manifestation of hemochromatosis, the gradual disappearance of skin pigment as observed clinically and the absence of abnormal skin pigment as demonstrated at autopsy in this case are difficult to explain.

2. Boland, B. F., and Curran, L. F.: Hemochromatosis; Two Atypical Cases Occurring in Brothers, J. A. M. A. **97:** 379-381 (Aug. 8) 1931.

SUMMARY

In a case of hemochromatosis which was under observation for almost six years, diabetes was characterized by insulin resistance, difficulty in stabilization and an unusual susceptibility to infection. It is felt that insulin prolonged the patient's life four or five years.

Louisville City Hospital.

Clinical Notes, Suggestions and New Instruments

PROGRESSIVE POSTOPERATIVE GANGRENE OF THE ABDOMINAL WALL FOLLOWING APPENDECTOMY

W. L. BROWN, M.D.; C. P. BROWN, M.D., AND J. L. MURPHY, M.D., EL PASO, TEXAS

Cases of postoperative or postinjectional gangrene of the skin of a progressive nature are so numerous in the literature that it is difficult to make a review of one certain variety, owing to the variation of nomenclature.

This report is limited to a progressive gangrene of the skin and subcutaneous tissues of the abdominal wall following laparotomies and chiefly following operations for ruptured appendixes. The latter condition is rather distinctive from closely related progressive gangrene elsewhere and presents so often the same characteristics that it can almost be classed as a clinical entity.

H. D., a man, aged 50, a postal clerk in a neighboring city, had had attacks of indigestion characterized by sour stomach, heartburn, constipation and headaches since childhood. The usual cathartics were resorted to with fair results. There was never a definite attack of appendicitis until the present illness. At the age of 24, he was sick two months with inflammatory rheumatism and again for one month at the age of 31. With the last attack he was aware of a heart lesion, and, although it has never troubled him, he was prevented from enlisting in the army in 1918 on this account. The remainder of the past history is irrelevant.

The present illness began as a "bilious attack" about Jan. 1, 1932. There was a dull pain in the right flank, which gradually increased in intensity but did not confine him to bed. On the afternoon on the third day nausea and vomiting appeared and lasted until midnight. There was slight fever. The pain and tenderness never localized over the appendix region to the extent of justifying a definite diagnosis. Intestinal influenza was suspected by the local physician. On the seventh day the patient was up and about. On the twelfth day the fever and pain returned and at this time a mass was felt in the region of the appendix. The pain and tenderness was now localized at McBurney's point.

A local surgeon operated and found a definite walled off abscess with the greater portion of the appendix sloughed away. The stump of the appendix was removed and a rubber drain was used. Convalescence was uneventful until the fifth postoperative day, when the edges of the skin around the rubber drain began to turn a dusky red and later became dark. This necrosis progressed steadily in spite of various kinds of wet dressings, including boric acid and mercuric chloride. The dressings were very painful and the patient became more and more emaciated. We saw him on the ninth day after necrosis was noted. The ulcer then measured 3½ by 4½ inches with the long axis in the line of the incision of the previous appendectomy (fig. 1).

We advised complete excision of the ulcerating area by cautery. By this time the patient had lost 20 pounds (9 Kg.) and,

with an enlarged heart from mitral stenosis, was a rather poor operative risk for such an extensive procedure.

The ulcer base appeared to extend only to the fascia, and exuberant granulations were present. The edge was formed by a strip of necrotic and necrosing skin about 2 cm. wide, which was undermined and beneath which pus could be easily expressed. More peripherally was an area about 3 cm. wide in which the skin was red, indurated and slightly raised above the normal skin. This zone appeared somewhat like erysipelas but not with as well defined a margin. At the region from which the drain was removed there was a depression but no evidence of a fecal fistula. There was no normal skin left at the site of the incision as others have so frequently reported.

After preoperative supportive measures were carried out, the ulcer was surrounded with the electrocoagulation knife, which was kept well outside the red zone into the normal skin. The dissection was carried down to the fascia and the ulcer along with its base removed in one piece, with cautions of further contaminations of raw surface by the pus from the ulcer. The bleeding was controlled entirely by coagulation. This left a denuded area that extended almost to the umbilicus medially, Poupart's ligament inferiorly, well past the anterior superior iliac spine laterally and almost to the costal margin superiorly, with healthy fascia as a base except for a small depression at the site where the rubber drain had been (fig. 2).

This area was further cauterized. A gauze dressing saturated with an ointment composed of 5 per cent boric acid and 5 per cent zinc oxide in petrolatum was applied and this was covered with an electrical pad continuously. In a few days, healthy granulations appeared. On the tenth day, following forty-eight hours of hot boric acid compresses, the ulcer was covered with skin grafts.

There were two small recurrences of necrosis at the upper border of the wound, owing to the fact that we had not cut far enough out into the normal skin at these points. These were easily controlled by touching them with the cautery.

The patient's general condition and outlook improved almost immediately after the excision of the ulcer, but on the sixteenth day following the excision of the ulcer convalescence was interrupted by intestinal obstruction and auricular fibrillation. Enemas and turpentine stupes would not relieve the obstruction, so that operation was inevitable. The question arose as to where we would make the incision. The midline would be too far from the original abscess, where we felt the obstruction

Fig. 1.—Before excision.

was located, while on the other hand we did not wish to cut through the new skin grafts, which were just beginning to grow.

Disregarding the latter, the incision was made just medial to the original appendectomy wound. Realizing that the grafted area was infected, we sterilized the operative field as well as possible with iodine and sewed towels previously saturated in 1:1,000 mercuric chloride solution to the underlying muscles before the peritoneum was opened. The obstruction was corrected and our wound closed as well as possible with silkworm-gut sutures through muscle, fascia and skin grafts. Considerable sloughing occurred at the site of our wound, but it gradually granulated over so that five weeks after the excision of the ulcer the patient was discharged from the hospital with only one small area of granulation. He was slow in regaining his weight and strength but this was partially due to his heart lesion. A check up six months and one year later revealed a complete healing of the area. At the site of the last operation there is a weakness of the abdominal wall, but this is without subjective symptoms.

Smear and culture examinations taken from underneath the necrotic edge prior to operation showed gram-negative, motile

Fig. 2.—After excision.

bacilli, gram-positive Staphylococcus aureus and gram-positive diplococci. We did not search in the red zone for streptococci, but a microscopic section revealed a marked inflammatory process with extensive polymorphonuclear infiltration.

REVIEW OF THE LITERATURE

Cullen of Baltimore reported the first case of progressive postoperative gangrene of the skin following appendectomy in 1924, or only nine years ago.

Lynn [1] of Baltimore, up to November, 1931, had seen or collected from the literature twenty-one such cases; fifteen in males and fourteen following operation from appendiceal abscess or peritonitis. Ten of the patients were above 45 years of age. The condition is certainly more common following laparotomies, but Christopher and Ballin [2] each reported progressive gangrene of the skin following thoracoplasty in 1924 and 1931, respectively.

Meleney [3] of New York, who probably has done more work along this line than any one else, saw fourteen cases of gangrene of the skin following scarlet fever antitoxin injections in a period of five years. He has also been enlightening on hemolytic streptococcic gangrene of the scrotum and penis. The last two, however, do not seem to be the same type of necrosis as that of the abdominal wall after appendectomies.

As to the etiology, very little is known. The more common organisms found are nonhemolytic streptococci, hemolytic staphylococci and diphtheroids, especially the two former, and usually the streptococci are in the red swollen tissues while the staphylococci are back at the necrotic margin. Meleney thinks

1. Lynn, F. S.: Postoperative Gangrenous Ulcer of Abdominal Wall, J. A. M. A. **97**: 1597 (Nov. 28) 1931.
2. Ballin, Max, and Morse, P. F.: Progressive Postoperative Gangrene of Skin, Am. J. Surg. **11**: 81 (Jan.) 1931.
3. Meleney, F. L.: Hemolytic Streptococcus Gangrene Following the Administration of Scarlet Fever Antitoxin, Ann. Surg. **91**: 287 (Feb.) 1930.

there is a symbiotic relation between these two organisms that is necessary to produce the condition. Gangrene would not occur except for the staphylococci, while the streptococci seem to prepare the way for the staphylococci.

The characteristics of the lesions may be summarized as follows: On the seventh to the fourteenth day after operation, at the skin margins or at the stitch holes, the skin becomes dully red and rapidly becomes edematous, dark and necrotic. The edges become undermined and the sloughing tissue becomes white from beneath and exudes a seropurulent discharge. Beyond the sloughing zone is a dark red edematous zone about 1 to 1½ inches in width that spreads at about the rate of 2 cm. a day. The original scar may or may not be involved. It may even retain a halo of normal skin about it. The base of the ulcer is very granular, the granulations resting on the fascia but not involving it or the underlying muscles. In no case reported has there been a fecal fistula.

The symptoms are a slight increase in temperature and leukocytosis. Pain may be of a mild to severe burning, especially when the dressings are changed. There is a decided loss of appetite and a progressive emaciation. The depressed emotional state of the patient is quite noticeable.

In the diagnosis, simple stitch abscesses, erysipelas and gas bacillus infection must be considered. In erysipelas the onset is sudden and there is usually a chill. The red area spreads rapidly, but there is no gangrene. In gas bacillus infections the onset is sudden, prostration is marked and there is usually crepitation.

As to the prognosis of the twenty-one cases collected by Lynn,[1] only one patient died of gangrene, and the usual course from onset to healing of the grafts varied from two to twenty-two months.

To date, the only satisfactory treatment has been the electrotherm knife, the incision being carried well out into the normal tissue and completely undermining the base. This controls bleeding and helps to prevent further spreading of the infections. All kinds of drug medication, lights and x-ray treatments have been tried but to no avail. About seven to ten days after the ulcer has been removed, skin grafting can usually be done. During this time hot boric acid or saline compresses are used.

404 Roberts Banner Building.

TOXIC CIRRHOSIS OF THE LIVER DUE TO "HYDROCIN" (50 PER CENT CINCHOPHEN)

DONALD W. INGHAM, M.D., LANCASTER, PA.

Since cinchophen has been used as an analgesic, particularly in the treatment of arthritis and allied conditions, there have been many contributions to medical literature regarding its toxicity and the signs and symptoms subsequent to the toxic action. A brief concise review of the literature on this subject was given by Weis [1] in 1932. Since that time there have been numerous reports, but the following case fits in well with the cases reported by Parsons and Harding.[2]

REPORT OF CASE

Mrs. F. B., aged 63, was admitted in coma, Sept. 9, 1933, at 4:55 p. m., in the service of Drs. J. L. Atlee, Jr., and Harvey Seiple, in the Lancaster General Hospital. The history was obtained from one of the patient's daughters. The patient had been sick for over a year with arthritis and had been treated by a physician with some degree of improvement, but in June of this year she discontinued supervised medical treatment and on the advice of a friend secured a bottle of Renton's Hydrocin tablets from New York. From that time until the time of admission she had taken three bottles of fifty and nearly all of the fourth. Thursday, September 7, the patient noticed a yellow discoloration of the skin. The next day she had a "pain in the abdomen." A physician was called who advised confinement to bed. Saturday, September 9, she arose and came downstairs and at 9:30 a. m. had a severe pain in the upper part of the abdomen. At this time a hypodermic of morphine sulphate was given, following which she slept. Early in the afternoon the family heard her moaning and was unable to rouse her. Since Thursday the jaundice had become progressively worse. She was then brought to the hospital. It is interesting to note that, when the Hydrocin tablets were begun, the patient had a severe gastric upset consisting of pain in the epigastrium, nausea and vomiting; also that a rash developed over the face and forehead after each dose of the medicine. She finally discovered that, by taking half the prescribed dose, i. e., half a tablet four times a day, these symptoms were not as severe.

The family history was essentially negative.

The patient had always enjoyed good health with the exception of an attack of pneumonia eleven years before and the present condition. There was no history of indigestion or any symptoms referable to liver dysfunction. She had had five pregnancies, the youngest child being now 31. She had had no operations nor accidents.

On examination, the temperature was 103.8 F., the pulse 154 and thready, the respiration rate 16 and shallow and the blood pressure 78 systolic, 50 diastolic. The patient was comatose and showed almost a bronze coloration of the skin. There were macular and papular eruptions over the face and forehead. The hands and feet showed evidence of arthritis deformans. The heart and lungs were normal; the area of liver dulness was decreased.

The laboratory data showed the blood sugar on two successive readings to be 10 and 0; carbon dioxide, 22; urea, 17.5. The urine was deeply bile colored, showed a heavy trace of albumin, was 4 plus positive for acetone and bile, and showed occasional finely granular casts.

Dextrose and insulin were given at once and stimulation was begun, but despite all treatment the coma deepened, the respiration and pulse became more rapid and the patient died at 11:10 p. m., the day she entered the hospital.

Autopsy showed a small liver weighing 800 Gm. Its surface was studded with miliary yellow elevations surrounded by red liver tissue. On section, the liver cut with increased resistance and was flabby. The cut surfaces were red with a patchy distribution of yellow foci of necrosis, which were slightly raised above the cut surface. The liver was tough and not friable. The gallbladder was distended but contained no calculi, and the ducts were patent. Microscopically the liver showed marked destruction of the parenchyma with only small islands of relatively unchanged liver tissue remaining. The remaining liver cells appeared swollen and granular. There was extensive proliferation of bile duct epithelium within the mass of necrotic tissue. Between the islands of liver cells, fibroblastic proliferation was also quite marked. Hemorrhage and phagocytosis of blood and bile pigments were seen throughout.

COMMENT

A report of the Bureau of Investigation [3] contains the results of an analysis made by the American Medical Association Laboratory, of "Renton's Rheumatic Tablets." These were found to contain 48.8 per cent of cinchophen. At that time the name was changed to Renton's Hydrocin. Weis reviews eighty-nine cases of hepatotoxicosis; fifty-two of the patients recovered and thirty-seven died. Thirty of these cases were proved by autopsy to be due to cinchophen and its compounds. Harding and Parsons [4] suggest that the symptoms be divided into four groups: (1) cutaneous manifestations, pruritus, urticaria, and macular and papular eruptions; (2) an anaphylactoid reaction characterized by neurocirculatory disturbance, rapid pulse and low blood pressure; (3) gastro-intestinal disturbances including simple aphthous ulcers in the mouth, pyrosis, nausea, vomiting and diarrhea, and (4) liver involvement as indicated by jaundice. Weis comments that the toxic manifestations have no relation to the amount of the drug ingested but is probably due to an idiosyncrasy for the drug.

SUMMARY

1. A fatal case of toxic cirrhosis of the liver due to Renton's Hydrocin (50 per cent cinchophen) manifested three of the symptoms outlined by Parsons and Harding.

1. Weis, C. R.: Toxic Cirrhosis of the Liver Due to Cinchophen Compounds: Report of Three Fatal Cases, J. A. M. A. **99:** 21-24 (July 2) 1932.
2. Parsons, Lawrence, and Harding, W. G. 2d: Fatal Cinchophen Poisoning, Ann. Int. Med. **6:** 514-517 (Oct.) 1932.
3. Renton's Hydrocin Tablets, J. A. M. A. **96:** 209-210 (Jan. 17) 1931.
4. Parsons, Lawrence, and Harding, W. G., Jr.: Am. J. M. Sc. **181:** 115-125 (Jan.) 1931.

2. In view of the increasing number of reports of toxic cirrhosis due to cinchophen and its compounds, a plea is made for careful supervision in the administration of this drug and immediate discontinuance of the drug when any of these symptoms develop.

528 North Lime Street.

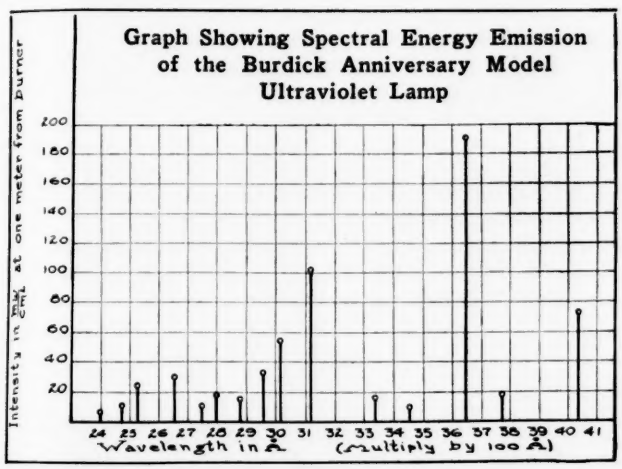
Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

H. A. CARTER, Secretary.

BURDICK ANNIVERSARY MODEL ULTRAVIOLET QUARTZ LAMP ACCEPTABLE

The Burdick Corporation of Milton, Wis., is the manufacturer of this unit. The burner, uviarc mercury quartz type, is similar in construction to that used in other Burdick ultraviolet lamps. The electrodes are sealed in by graded fused seals. Ordinarily the burner does not need to be tilted when starting but merely shaken slightly. When operated on alternating current, it is self rectified. It is available for either alternating or direct current. The reflector is chromium plated interiorly and the wiring is concealed. It is adjustable to vertical and


Graph Showing Spectral Energy Emission of the Burdick Anniversary Model Ultraviolet Lamp
Intensity in Mk per cm² at one meter from burner
200
180
160
140
120
100
80
60
40
20
24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41
Wavelength in Å (multiply by 100 Å)

Emission characteristics of Burdick Anniversary Model Ultraviolet Quartz Lamp.

horizontal positions. The adjustable stand permits the lamp to be at any height between 40 and 72 inches from the floor. The entire unit is portable. It is finished in a combination of brown and ivory.

The ultraviolet radiation generated by this lamp is of sufficient intensity to produce a first degree erythema on the average skin in a minute and a half at a distance of 30 inches.

The operating characteristics are as follows:

Alternating Current		*Direct Current*	
Line voltage	105-125	Line voltage	105-125
Starting amperage on line	8.0	Starting amperage	6.6
Operating amperage on line	5.0	Operating amperage	3
Normal burner voltage across anodes	164	Maximum burner voltage	72
Operating watts from line	400	Start burner voltage	18
Cathode burner operating amperage	4.6		
Maximum burner equivalent voltage	50		
Start burner voltage	18		

The curve in the accompanying chart shows the emission characteristics of the lamp.

When ordering this unit, the type of current available should be indicated.

The Council on Physical Therapy declares the Burdick Anniversary Model Ultraviolet Quartz Lamp eligible for inclusion in its list of accepted devices.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

PHENOBARBITAL SODIUM (See New and Nonofficial Remedies, 1933, p. 96).

Phenobarbital Sodium-Abbott.—A brand of phenobarbital sodium-N. N. R.

Manufactured by the Abbott Laboratories, North Chicago, Ill. No U. S. patent or trademark.

ABBOTT'S HALIVER OIL, PLAIN (See THE JOURNAL, Nov. 18, 1933, p. 1634).

The following dosage form has been accepted:

Abbott's Haliver Oil Plain Capsules, 3 minims: Each capsule contains Abbott's haliver oil, plain, 3 minims.

POLLEN EXTRACTS-MULFORD (See New and Nonofficial Remedies, 1933, p. 37).

The following additional products, marketed in 5 cc. vials containing 2,000 pollen units per cubic centimeter, have been accepted:

Arizona Ash Pollen Extract-Mulford; Barnyard Grass Pollen Extract-Mulford; Birch Pollen Extract-Mulford; Chrysanthemum Pollen Extract-Mulford; Hemp Pollen Extract-Mulford; Mesquite Pollen Extract-Mulford; Papaw Pollen Extract-Mulford; Primrose Pollen Extract-Mulford; Arizona Walnut Pollen Extract-Mulford; Sycamore Pollen Extract-Mulford; Saw Grass Pollen Extract-Mulford; Sagewort Pollen Extract Mulford; Prairie Sage Pollen Extract-Mulford; and Pasture Sage Pollen Extract-Mulford.

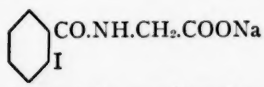
PRELIMINARY REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING PRELIMINARY REPORT.

PAUL NICHOLAS LEECH, Secretary.

HIPPURAN

Hippuran is a product of the Mallinckrodt Chemical Works, proposed by Swick[1] for intravenous and for oral urography. Its chemical constitution is stated to be sodium ortho-iodohippurate.



Hippuran was submitted for consideration by the Council at the request of the Council on Scientific Assembly in order that Dr. Swick might present a report on this preparation at a section of the Assembly in Milwaukee.

Sodium ortho-iodohippurate contains 38.8 per cent of iodine; it is said to be soluble in less than its own weight of water and to be stable in aqueous solution. It was chosen as a promising agent for visualizing the urinary tract, in view of the fact that hippuric acid normally occurs in the urine following the ingestion of benzoic acid, representing a conjugation of benzoic acid with glycine. Similarly, the ingestion of ortho-iodobenzoic acid is said to result in the appearance of ortho-iodohippuric acid in the urine.

Rabbits are stated to tolerate from 2 to 2.5 Gm. of Hippuran per kilogram as 30 per cent solution administered intravenously over a period of ten minutes. Tissues of rabbits have shown no evidence of injury from twenty-four hours to four months after injection. The substance is said to be excreted unchanged in the urine. From 60 to 66 per cent of the injected iodine is stated to be recoverable from the urine in the first hour, from 70 to 80 per cent in two hours and from 90 to 95 per cent within eight hours after injection. Hippuran has been used by Swick by the intravenous route in 125 patients and by the oral route in 14. Usually from 10 to 15 Gm. has been administered by vein in 40 per cent aqueous solution over a period of five minutes. Swick recommended that the first film

1. Swick, Moses: Surg., Gynec. & Obst. **56**: 62 (Jan.) 1933.

be exposed ten minutes after injection and that two subsequent roentgenograms be taken at twenty minute intervals. No reactions have been noted except a sensation of generalized warmth, such as has been reported with other products used for intravenous pyelography. With a dose of 30 Gm., occasional vomiting has occurred. By the oral route, with doses of from 10 to 15 Gm. dissolved in simple syrup, diagnostic pictures are reported to have been obtained 90 and 135 minutes after administration, in seven of fourteen cases.

As the product has not yet been sufficiently widely employed adequately to determine its value, the Council has voted to defer further consideration of Hippuran until more evidence has accumulated with respect to its clinical usefulness, at which time the product will be examined by the A. M. A. Chemical Laboratory.

Committee on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

OMAR WHEAT CEREAL

(WHEAT FARINA WITH WHEAT EMBRYO ADDED)

Manufacturer.—Omaha Flour Mills Company, Omaha.

Description.—A mixture of wheat farina and wheat germ with a small amount of bran.

Manufacture.—The farina is heat treated at a low temperature to destroy any insect infestation; the wheat germ is similarly treated separately, at 70 C. for fifteen minutes, after which it is promptly cooled. The farina and germ are mixed in formula proportions and automatically packed in cartons.

Analysis (submitted by manufacturer).—

	per cent
Moisture	11.8
Ash	1.3
Fat (ether extraction method)	2.8
Protein (N × 5.7)	13.3
Crude fiber	1.0
Carbohydrates other than crude fiber (by difference)	69.8

Calories.—3.4 per gram; 97 per ounce.

Claims of Manufacturer.—Essentially a carbohydrate food but containing good body-building proteins; recommended for infant feeding and "smooth" diets. Used as a breakfast food; cooks in from two to three minutes. Excellent source of vitamin B and a good source of G.

FAIRWAY WHITE LABEL BRAND STRAINED BEETS, CARROTS, CELERY, GREEN BEANS, GREEN PEAS, SPINACH, TOMATOES, PRUNES FLAVORED WITH LEMON JUICE, AND STRAINED VEGETABLES WITH CEREAL AND BEEF BROTH

UNSEASONED

Distributor.—Twin City Wholesale Grocer Company, St. Paul and Minneapolis.

Packer.—The Larsen Company, Green Bay, Wis.

Description.—Respectively sieved beets, carrots, celery, green beans, green peas, spinach, tomatoes, prunes flavored with lemon juice, and vegetables (carrots, potatoes, tomatoes, peas, beans, spinach) with pearl barley and beef extract; prepared by efficient methods for retention in high degree of the natural mineral and vitamin values. No added sugar or salt. These products are the same as the respective accepted Larsen's vegetables and fruits (THE JOURNAL, July 1, 1933, p. 35; July 8, 1933, p. 125; July 22, 1933, p. 283; July 29, 1933, p. 366; Aug. 12, 1933, p. 525; Aug. 19, 1933, p. 605; Aug. 26, 1933, p. 675; Sept. 2, 1933, p. 779).

VITAMIN D FORTIFIED PASTEURIZED MILK (150 STEENBOCK VITAMIN D UNITS PER QUART) ADVERTISING OF SOUTHWEST DAIRY PRODUCTS COMPANY

Distributor.—Southwest Dairy Products Company, San Antonio and Wichita Falls, Texas.

Description.—Advertising for bottled pasteurized grade A milk fortified with vitamin D (vitamin D concentrate prepared from cod liver oil); contains 150 Steenbock vitamin D units per quart.

Preparation.—The milk complies with the requirements specified by the laws of the state of Texas and the city of San Antonio or other municipalities in which it is distributed.

See this section for Vitamin D Fortified Pasteurized Milk of W. J. Kennedy Dairy Company, Detroit, for description of fortification with vitamin D (THE JOURNAL, July 1, 1933, p. 34). The milk is pasteurized by the standard procedure of holding at 62 C. for not less than thirty minutes, is immediately cooled to 4 C., and automatically bottled.

Analysis (submitted by manufacturer).—

	per cent
Moisture	87.0
Total solids	13.0
Ash	0.7
Fat	4.2
Protein (N × 6.38)	3.3
Lactose (by difference)	4.8

Calories.—0.7 per gram; 20 per ounce.

Vitamins.—The vitamin D concentrate used in the preparation of this vitamin D milk and the fortified milk are regularly tested biologically. Clinical investigation shows this milk to be a reliable antirachitic agent.

Claims of Manufacturer.—A vitamin D fortified, antirachitic pasteurized milk having the natural flavor and food values of standard pasteurized milk.

DAVIDSON'S GENUINE 100% WHOLE WHEAT BREAD

Manufacturer.—Davidson Baking Company, Portland, Ore.

Description.—A whole wheat bread made by the sponge dough method (method described in THE JOURNAL, March 5, 1932, p. 817); prepared from whole wheat flour, water, milk, honey, salt, butter and yeast.

Analysis (submitted by manufacturer).—

	per cent
Moisture	35.2
Ash	1.6
Fat (acid hydrolysis method)	4.3
Protein (N × 6.25)	10.4
Crude fiber	1.9
Carbohydrates other than crude fiber (by difference)	46.6

Calories.—2.7 per gram; 77 per ounce.

Claims of Manufacturer.—Conforms to the United States Department of Agriculture definition and standard for whole wheat bread.

CAPITANA FLOUR (BLEACHED)

Manufacturer.—Texas Star Flour Mills, Galveston, Texas.

Description.—Hard red winter wheat "1st clear" flour; bleached.

Manufacture.—Selected hard red winter wheat is cleaned, scoured, tempered and milled by essentially the same procedure as described in THE JOURNAL, June 18, 1932, page 2210. Flour streams not chosen for patent grades are blended and are bleached with nitrogen trichloride (one-ninth ounce per 196 pounds) and with a mixture of calcium phosphate and benzoyl peroxide (1 part to 50,000 parts flour).

Claims of Manufacturer.—For general baking.

EUREKA QUICK-ACTING DOUBLE-ACTING PURE BAKING POWDER

Manufacturer.—Eureka Products Company, Louisville, Ky.

Description.—Baking powder containing corn starch, sodium bicarbonate, sodium aluminum sulphate, calcium acid phosphate, and a small quantity of dried white of egg.

Manufacture.—The ingredients complying with definite specifications of purity are thoroughly mixed in formula proportions. Each batch is tested by the laboratory for total carbon dioxide, and the neutrality of the residue formed after liberation of the leavening gas, carbon dioxide. The mixture is automatically packed in tins.

Analysis (submitted by manufacturer).—

	per cent
Total carbon dioxide (CO_2)	15.2
Available carbon dioxide (CO_2)	14.2
Residual carbon dioxide (CO_2)	1.0
Phosphorus as P_2O_5	7.9 ..as P...3.45
Calcium oxide (CaO)	3.11..as Ca..2.22
Sulphuric anhydride (SO_3)	12.81..as S...5.13
Aluminum oxide (Al_2O_3)	4.12..as Al..2.18
	parts per million
Arsenic (As)	0.2
Lead (Pb)	less than 2

Calories.—1.5 per gram; 43 per ounce.

Claims of Manufacturer.—For use in all baking and cooking recipes calling for baking powder. The product and ingredients conform to United States Department of Agriculture requirements as expressed in its definition and standard for baking powder. The two acid reacting ingredients for liberation of the leavening gas, because of their different solubilities, produce a "double leavening action" in the dough. The first action releases a portion of the leavening gas in the cold dough, the second releases the remaining gas in the heated dough in the oven.

RIVAL BEETS, CARROTS, CELERY, GREEN BEANS, PEAS, SPINACH, TOMATOES, PRUNES FLAVORED WITH LEMON JUICE, AND VEGETABLE SOUP WITH CEREAL AND BEEF BROTH

STRAINED, UNSEASONED

Distributor.—Rival Foods Incorporated, Cambridge, Mass.

Packer.—The Larsen Company, Green Bay, Wis.

Description.—Respectively sieved beets, carrots, celery, green beans, green peas, spinach, tomatoes, prunes flavored with lemon juice, and vegetables (carrots, potatoes, tomatoes, peas, beans, spinach) with pearl barley and beef extract; prepared by efficient methods for retention in high degree of the natural mineral and vitamin values. No added sugar or salt. These products are the same as the respective accepted Larsen's vegetables and fruits (THE JOURNAL, July 1, 1933, p. 35; July 8, 1933, p. 125; July 22, 1933, p. 283; July 29, 1933, p. 366; Aug. 12, 1933, p. 525; Aug. 19, 1933, p. 605; Aug. 26, 1933, p. 675; Sept. 2, 1933, p. 779).

MEAD'S POWDERED PROTEIN MILK NON-CURDLING

RICHER IN PROTEIN AND LACTIC ACID AND LOWER IN LACTOSE THAN DRIED WHOLE MILK

Manufacturer.—Mead Johnson and Company, Evansville, Ind.

Description.—Powdered homogenized modified milk prepared from whole milk casein curd precipitated with calcium chloride and skim milk acidified with U. S. P. lactic acid; relatively richer in protein and lactic acid and lower in lactose than dried whole milk.

Manufacture.—High grade milk produced under the Chicago Board of Health Inspection is used. Two thirds of the total volume of the milk to be treated is whole milk; one third is skim milk. The whole milk is boiled and treated with sufficient calcium chloride to cause coagulation of the casein; the butterfat is occluded in the curd. The curd is allowed to settle and the whey containing the calcium chloride is removed by decantation. The curd is drained, admixed with the skim milk acidified to 0.75 per cent with U. S. P. lactic acid and homogenized. Steam is injected into the mixture in a closed tank with a vent pipe connected to a condenser and to a vacuum pump. The air is exhausted from the tank, the mixture is rapidly heated to 110 C. and after one minute is rapidly cooled by creation of a vacuum in the tank. The heating in the absence of air prevents oxidation of the natural vitamins of the milk. The mixture is again homogenized, spray dried and sealed in tins. The process described changes the character of the casein, so that boiling the reconstructed powdered "protein milk" does not cause curdling.

Analysis (submitted by manufacturer).—

	per cent
Moisture	1.5
Ash	6.0
Milk fat	26.5
Protein (N × 6.38)	39.0
Lactose (by difference)	24.0
Titratable acidity as lactic acid	3.0

Analysis of standard dilution (1 ounce powder to 11 ounces water):

	per cent
Ash	0.5
Milk fat	2.2
Protein (N × 6.38)	3.3
Lactose (by difference)	2.0
Titratable acidity as lactic acid	0.3
*p*H	4.8

Calories.—5.0 per gram; 142 per ounce.

Claims of Manufacturer.—To be used in accordance with the physician's instructions when a modified milk food richer in protein and lactic acid and lower in lactose than dried whole milk is desired.

FANT MILLING COMPANY WHOLE WHEAT FLOUR

Manufacturer.—Fant Milling Company, Sherman, Texas.

Description.—Whole wheat flour milled from high protein hard winter wheat.

Manufacture.—Whole wheat is cleaned, washed, scoured, tempered, and reduced to a flour.

Analysis (submitted by manufacturer).—

	per cent
Moisture	13.0-14.0
Ash	1.5- 1.6
Fat (ether extraction method)	1.8- 2.0
Protein (N × 5.7)	14.5-15.5
Crude fiber	2.0- 2.3
Carbohydrates other than crude fiber (by difference)	67.2-64.6

Calories.—3.4 per gram; 97 per ounce.

McCORMICK'S BEE BRAND LEMON EXTRACT

Manufacturer.—McCormick and Company, Inc., Baltimore.

Description.—Lemon extract containing alcohol, water, and oil of lemon.

Manufacture.—Lemon oil from the peel of Italian and Sicilian lemons is expressed by hand, clarified by settling, packed in tinned copper cans and exported. At the United States factory the lemon oil is dissolved in 95 per cent alcohol, the necessary quantity of water is added, and the solution is clarified by filtration and bottled.

Analysis (submitted by manufacturer).—

	per cent
Alcohol, by volume	80.
Water, by volume	12.7
Oil of lemon, by volume	8.0
Citral	0.36 Gm. per 100 cc.

Claims of Manufacturer.—Conforms to the definition and standard for lemon extract of the United States Department of Agriculture.

LOG CABIN SLICED BREAD

Manufacturer.—Log Cabin Baking Company, Oroville, Calif.

Description.—A white bread made by the sponge dough method (method described in THE JOURNAL, March 5, 1932, p. 817); prepared from patent flour, water, sucrose, shortening, powdered skim milk, salt, yeast and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, DECEMBER 9, 1933

NEW FOODS AND DRUGS LEGISLATION

The proposed repeal of the Food and Drugs Act of 1906 as amended, with the enactment of an entirely new law, now commonly called the Tugwell or Copeland Food, Drug and Cosmetic bill (S. 1944, H. R. 6110), has resulted in an unusual—perhaps much to be expected—outpouring of publicity and propaganda from many sources. Periodicals representing the drug, food and cosmetic industries have burst forth with hysterical editorials, special articles, cartoons and similar manifestations of interest indicating extraordinary fears in relationship to the effects of this legislation, if enacted, on the industries that they represent. At the same time, such organizations as represent movements for pure foods and drugs honestly advertised and some of the great leaders in the food and drug industry have indicated their general approval of the measure in most of its aspects. Not only from Washington, and particularly from officials representing the Food and Drugs Administration, but also from Mrs. Franklin D. Roosevelt have come statements indicating that the proposed act may be said to represent an administration measure. By that very fact the Tugwell or Copeland bill is likely to become to some extent at least the law of the land.

The most significant aspects of the proposed legislation concern the extent to which it controls advertising apart from the label and the package. It is no secret that the development of modern advertising, particularly for certain types of drugs, foods and cosmetics, has been so extravagantly elaborated and altogether so grossly exaggerated, misleading and unwarranted as to smell to high heaven in the nostrils of every honest man. The extragovernmental agencies that have been developed in order to assure readers of certain types of advertising copy that some censorship and control have been applied bear witness to the fact. The growth of the various councils and committees of the American Medical Association in the fields of drugs, foods and physical therapy, the growth of such agencies as Consumers' Research, and the innumerable labels and seals that attempt to indicate to readers honesty of manufacture and of advertising are evidence of the necessity for some further control over the industries concerned. Unfortunately, these industries have been so unwise as to fail to develop for themselves efficient codes of ethics and methods of enforcement. It seems reasonable to believe that new legislation would have been unnecessary if the industries concerned, and particularly advertising, had seen sufficiently soon the handwriting on the wall.

At the last meeting of the Board of Trustees of the American Medical Association, held in Chicago in November, the publications of the Association were urged to support the principle of the new foods and drugs legislation. The Board of Trustees supports fully the necessity for control at this time of the advertising of foods, drugs and cosmetics but did not consider the time as yet ripe for official pronouncements on the details of administration involved in the new act. Whereas the new legislation is intended to embody all the valuable features of the act which it repeals and to make such additions as may be necessary for regulation of the manufacture, distribution and sale of foods, drugs and cosmetics, it seems in some parts to fall short of this purpose. In the new legislation the Secretary of Agriculture is vested with authority beyond that originally granted by similar legislation. This aspect of the bill has been widely attacked; however, Mr. Walter G. Campbell, chief of the Food and Drugs Administration, points out that the charge is a fallacy, since the proposed law says "The findings of fact by the Secretary of Agriculture shall be conclusive if in accordance with the law."

In their attempt to attack the proposed legislation, "patent medicine" manufacturers particularly have insisted that it will prevent self medication. They have even insinuated that the Tugwell bill was prepared by the American Medical Association as a means of preventing the public from treating itself with household remedies as it has in the past. The insinuation is absolutely unwarranted. The American Medical Association has recognized the use of household remedies and has even listed in *Hygeia,* its magazine for the public, those which were considered particularly suitable for the family medicine chest. Secondly, as Mr. Campbell points out, the Tugwell bill recognizes the right of self medication but goes further in asserting that the person who does attempt to treat himself has a right to know what he is employing, its uses, and whether or not it possesses any dangers to his health. The manner in which this charge has been used by the "patent medicine" industry in attacking the Tugwell bill previous to any hearings might well be taken as a further indication of the real necessity for such legislation.

The Bureau of Legal Medicine and Legislation of the American Medical Association has been carefully analyzing the provisions of the Tugwell bill from the points of view of its protection of the public, its

adaptability to the practice of medicine, and its successful administration. No doubt the hearings that will be held on this bill before it comes up for final action before Congress will bring to light necessity for various modifications of its phraseology and even of some of its regulations. In the meantime, however, the American Medical Association goes on record as being wholly behind the principles represented by this legislation. The American people have a right to the greatest protection that the law can afford in relationship to their health. The use of foods, drugs and cosmetics is intimately bound with the health of the people. The evidence that the Food and Drugs Act of 1906 failed largely of its purpose because of gross abuses that developed in advertising is so glaring that it is common knowledge to the man in the street. The time has come for extension of this legislation to bring about better control. The leading associations in all the industries concerned recognize this necessity. Those manufacturers who exploit human frailty for personal gain are apparently girding themselves for battle, for they know that such legislation as is proposed means the death of their rackets. It will behoove the medical profession to be aware of the interests concerned and the principles involved, to follow the hearings on this vital subject, and to use all the influence it possesses to aid its passage, when a suitable bill is finally evolved from the proposed measure.

SOME FIGURES ON INDUSTRIAL ACCIDENTS

"Safety first" has become such a well known phrase that familiarity with it has tended to lessen the public sense of the significance of the campaign for accident prevention. One need only peruse the figures setting forth the heavy toll of life and limb that was exacted by many industries twenty-five years ago and compare them with those of the same industries today to be impressed by the remarkable progress that has been made.

The *Monthly Labor Review*, organ of the Bureau of Labor Statistics of the United States Department of Labor, published in its September issue an article on the accident experience in the iron and steel industry to the end of 1932.[1] Taking the industry as a whole, there has been a decline from 82.06 accidents resulting in death or disability per million man-hours worked in 1907 to 18.06 in 1932. In 1907, 6.9 hours of working time was being lost by injured workmen for every thousand man-hours worked. In 1932 the loss of time was 2.19 hours. This is a reduction of 68.3 per cent. The fatal accident rate diminished from 0.76 per cent in 1907 to 0.14 in 1932, permanent disability from 1.27 to 1.03, and temporary disability from 80.03 to 16.89.

These decreases have not been uniform in all branches and phases of the industry or in all states in which the manufacture of iron and steel is an important enterprise. The best records are those of blast furnaces, Bessemer converters, plate mills, open hearth furnaces and rolling mills. The poorest are those of foundries, puddling mills, axle works and car wheels. In fact, the frequency rate in puddling mills increased from 47.07 in 1917 to 68.94 in 1932. Taking the four leading iron and steel manufacturing states, Pennsylvania, Ohio, Indiana and Illinois, Indiana has considerably the best record. In Indiana the rate was lowest in 1907, and the percentage of improvement was greater in 1932 than that of any of the other three states. Types of industrial processes and the emphasis placed on accident prevention are the most probable causes of these regional differences.

In the petroleum industry the last six years has witnessed a reduction in the accident frequency rate of 60 per cent and in the severity rate of 28 per cent. With an estimated cost to this industry of $300 for each disabling accident, this reduction represents a saving of more than three million dollars in 1932. In the cement manufacturing industry the frequency rate fell from 10.61 in 1928 to 4.65 in 1932, and the severity rate from 3.72 to 1.80. Fifty-seven of 112 cement manufacturing establishments reported that they had had no disabling accidents in 1932, and thirty others had but one accident each.

The development of industrial safety codes which, since 1913, has been a function of the United States Bureau of Standards, has been transferred as a government economy measure to the American Standards Association. This association, organized in 1918 by five major engineering societies, is a federation of thirty-seven trade associations, technical societies and governmental departments.

1. Monthly Labor Review **37**: 566 (Sept.) 1933.

LATHYRISM

Leguminous seeds, including edible beans, peas and the peanut, are such common ingredients of the diet in most parts of the world where these foods are freely available that few persons suspect the shortcomings of some of the species. In contrast with the cereal grains, the most common sources of human energy, with a protein content rarely exceeding 12 per cent, the legumes may be made up of as much as 23 per cent of albuminous constituents. As McLester[1] has pointed out, while the proteins of the legumes are of higher quality than those of the cereal grains, there is as a rule something lacking in their structure which limits their availability. Many of them are lacking in cystine. They have the power, however, to supplement in a satisfactory manner the cereal proteins; this is particularly true of wheat and the pea, and of wheat and the soy bean. The legumes are rich also in carbohydrate and contain a small amount of fat. The large amount of hemicellu-

1. McLester, J. S.: Nutrition and Diet in Health and Disease, Philadelphia, W. B. Saunders Company, 1931.

lose in the bean often leads to intestinal fermentation and flatulence. The vitamin content of the legumes varies somewhat; they are as a rule lacking in vitamin A; all contain an abundance of vitamin B. They offer a good supply of iron and phosphorus but are usually deficient in calcium, sodium and chlorine.

There are, however, species of legumes that seem to be poisonous. The effect is designated as lathyrism, or vetch poisoning. Various writers allege that this has been known since the time of Hippocrates, that it has been common in the past in India and northern Africa, and that small local outbreaks have occurred frequently in Italy, France and elsewhere in southern Europe.[2] For a long time it has been known that the disease is caused by the eating of lathyrus peas of three species, Lathyrus sativus, Lathyrus cicera and Lathyrus clymenum. After a poor crop of wheat, barley and other cereals, the poorer people in India and some parts of northern Africa are forced to eat the lathyrus peas as a large part of their diet, and lathyrism then becomes prevalent. The use of the peas as one third to one half of the diet for two or three months is considered enough to cause the disease.[3] However, not all persons eating such a diet are affected, and in families only certain members are attacked. When the peas are eaten as a smaller proportion of the diet, they are said to be harmless.[2] The symptoms in man are sudden and severe pain in the lumbar region, girdle sensation, motor paralysis of the extremities, tremor and fever.[4]

Opinions have differed with regard to the nature of the toxic agent in lathyrus seeds. The symptoms suggest the possibility of some degeneration of the spinal cord, and it has been proposed that this might be averted by appropriate dosage with vitamin A. An attempt has therefore been made at the University of Wisconsin[5] to ascertain whether the abnormal condition produced by the peas was ameliorated or prevented by the feeding of cod liver oil or yeast as vitamin supplements. The species of lathyrus peas used was Lathyrus odoratus, the sweet pea used for ornamental purposes in this country. Lathyrism could readily be produced in experimental animals by feeding diets containing liberal amounts of the "sweet pea." Young animals received no protection against the toxicity of the sweet peas from cod liver oil or cod liver oil concentrate or from dried yeast, but the adult animals were protected to some extent by the inclusion of 2 per cent of cod liver oil in the ration. Cooking the sweet peas for two and one-half hours did not destroy their toxicity. The toxic factor was extractable from the peas by water at the boiling point. The protection against lathyrism lies in the avoidance of the dietary use of legumes of known toxicity.

2. Stockman, R.: Lathyrism, J. Pharmacol. & Exper. Therap. **37**: 43 (Sept.) 1929.
3. Young, T. C. M.: A Field Study of Lathyrism, Indian J. M. Research **15**: 453 (Oct.) 1927.
4. Cecil, R. L.: Textbook of Medicine, ed. 2, Philadelphia, W. B. Saunders Company, 1930.
5. Geiger, Beatrice J.; Steenbock, Harry, and Parsons, Helen T.: Lathyrism in the Rat, J. Nutrition **6**: 427 (Sept.) 1933.

Current Comment

INTRANASAL VERSUS INTRAPERITONEAL VIRULENCE

The intraperitoneal virulence of the pneumococcus injected into mice is currently regarded as a reliable measure of its natural infectivity for this animal species. Such tests, however, may give a wholly misleading picture of its natural epidemiology. Webster and Clow[1] of the Rockefeller Institute report that, with the fifty pneumococcus strains thus far tested by them, intranasal virulence is in most cases wholly independent of the virulence as determined by the routine intraperitoneal method. High peritoneal pathogenicity, for example, is often accompanied by an almost total lack of nasal infectivity. There is a parallelism between nasal virulence and the tendency of the micro-organisms to set up carrier conditions and to spread by contact, but usually a complete lack of parallelism with virulence as determined by the routine intraperitoneal method. The New York investigators insist further that pneumococcus "stability" is widely different on the nasal surfaces and in internal tissues. Repeated intraperitoneal passage, for example, almost invariably enhances intraperitoneal virulence but has little or no effect on nasal pathogenicity. Repeated intranasal passage, in contrast, almost invariably causes a decrease and eventually complete loss of mucous membrane infectivity, which loss is not accompanied by a demonstrable reduction in peritoneal infectivity. If similar regional differences are found with Bacillus tuberculosis or with other microbe species, present-day epidemiologic concepts may require considerable modification.

SOME IMMEDIATE EFFECTS OF HEMORRHAGE

The ultimate effects of hemorrhage are familiar to physicians. Most conspicuous, perhaps, are the varying degrees of anemia, which may call for therapeutic or dietary prescriptions as well as time to complete the hematopoietic repair processes. Loss of corpuscles and their constituent hemoglobin cannot be recouped immediately. Adjustments of plasma volume occur much more promptly, so that persistent changes in vascular pressure may be averted in due season. Some of the physiologic responses to hemorrhage are, however, rapid. They may intervene in a period of a few minutes rather than hours or days. There is always some degree of fluid redistribution in the body. The details of this process have been studied by Adolph and his co-workers[1] at the University of Rochester. Immediately following, and even during, hemorrhage, distribution of the blood plasma is always observed. It is due to a rapid migration or transfer of fluid from extravascular spaces into the circulation. In the Rochester experiment the restorative possibilities of the spleen by means of its hidden resources of blood cells was excluded by preliminary removal of that organ. Some evidence of the source of part of the restorative fluid

1. Webster, L. T., and Clow, A. D.: J. Exper. Med. **58**: 465 (Oct.) 1933.
1. Adolph, E. F.; Gerbasi, M. J., and Lepore, M. J.: The Rate of Entrance of Fluid into the Blood in Hemorrhage, Am. J. Physiol. **104**: 502 (May) 1933.

was discovered by excluding certain viscera from the circulation. In their absence the rate of blood dilution was greatly diminished. There are observations to support the belief that even in man the immediate rate of entrance of fluid into the blood stream after hemorrhage may amount, for a time, to 0.25 cc. per kilogram of body weight in a minute. Adolph has summarized the further immediate effects of hemorrhage as follows: the primary effects of loss of blood from circulation are to decrease the arterial, venous and capillary pressures and to decrease the rate of blood flow and oxygen flow to most tissues. To this situation the circulation responds by increase in heart rate, discharge of epinephrine, discharge of blood from the spleen, local vasoconstrictions, and local persisting ischemias. The respiration responds to the local asphyxia in its centers and to the pouring of lactate into the circulation by hyperventilation, followed eventually by asphyxia and cessation of breathing. In the capillaries, fluid flows into the blood from tissue spaces, water excretion by the kidneys is diminished, and various dissolved constituents interexchange in response to the lowered pressures, to the anoxia, and to the altered types of tissue metabolism. This recital is indeed a thrilling picture of some of the factors that are brought into action when the integrity of the body functions is threatened.

Association News

ABSTRACT OF MINUTES OF MEETING OF BOARD OF TRUSTEES HELD AT ASSOCIATION HEADQUARTERS NOV. 16 AND 17, 1933

A meeting of the Board of Trustees was held in Chicago on Thursday and Friday, November 16 and 17, 1933.

PROJECT OF ESTABLISHING MEMORIAL ROOM IN PERSHING HALL ABANDONED

Since, owing to the present economic conditions, it seems impossible to complete by popular subscription the fund of $10,000 for the establishment in Pershing Hall of a memorial room in honor of the members of the medical corps of the expeditionary forces who served and gave their lives in the World War, it was decided to abandon the project and to return the money that has been collected.

HISTORY OF THE AMERICAN MEDICAL ASSOCIATION

A tentative outline for the preparation of a history of the American Medical Association, as a symposium volume, was approved, and the editor was authorized to assign the chapters and to compile the material for the volume as rapidly as possible.

ASSOCIATION TO EXHIBIT AT FAIR NEXT YEAR

It was decided to continue the exhibit of the Association in the Hall of Science at the Fair in 1934, with the understanding that the standard of the medical exhibits be maintained as high for the next year as it was this year.

REPRESENTATIVES ON ADVISORY BOARD ON PUBLIC HEALTH AND CHILD WELFARE OF THE GENERAL FEDERATION OF WOMEN'S CLUBS

Drs. N. B. Van Etten and A. C. Christie have been appointed to represent the American Medical Association on the Advisory Board on Public Health and Child Welfare of the General Federation of Women's clubs.

PREVENTION OF PRENATAL SYPHILIS

With a view to carrying out the resolution adopted by the House of Delegates relative to the prevention of prenatal syphilis, a conference of representatives of the health agencies mentioned in the resolution was arranged, to be held during this meeting of the Board. After the conference, a committee was appointed to develop plans for disseminating information on this subject to the profession and to medical schools, using the facilities of the Association for this purpose.

CODIFYING OF DECISIONS OF JUDICIAL COUNCIL AND OF OTHER OFFICIAL BODIES OF ASSOCIATION

The Board authorized the codification of the decisions of the Judicial Council and of other official bodies of the Association.

DISMISSAL OF SUITS AGAINST ASSOCIATION

The Association's attorneys advised the Board of Trustees that suits instituted against the Association by P. L. Clark and the Ora Noid Company have been dismissed, on motions of the plaintiffs.

APPOINTMENT OF CHAIRMAN OF LOCAL COMMITTEE ON ARRANGEMENTS FOR CLEVELAND SESSION

By unanimous vote, the selection of Dr. C. W. Stone to act as chairman of the Local Committee on Arrangements for the Cleveland Session was confirmed.

PUBLICATION OF STUDY OF INSURANCE PLANS IN EUROPEAN COUNTRIES

Authorization was given for the publication in book form of a report from the Bureau of Medical Economics, based on a study of insurance plans in European countries.

MISCELLANEOUS

Other matters were given consideration, most of which will be taken up again at later meetings and reported on at some future date.

MEDICAL BROADCAST FOR THE WEEK

Talk over Network of the National Broadcasting Company

The American Medical Association broadcasts each Monday afternoon from 1:30 to 1:45, Eastern standard time (12:30, central standard time). The subject for Monday, December 11, is "Holiday Follies." The speaker will be Dr. W. W. Bauer, director, Bureau of Health and Public Instruction, American Medical Association. Subjects and speakers for subsequent broadcasts will be announced weekly in THE JOURNAL.

The following stations thus far have signified their intention of accepting the program: WEAF, New York; WEEI, Boston; WTAG, Worcester, Mass; WBEN, Buffalo; WFBR, Baltimore; WTAM, Cleveland; WWJ, Detroit; WSAI, Cincinnati; WDAF, Kansas City, and WMAQ, Chicago. Additional acceptances will be announced in THE JOURNAL, when received.

Radio Talks from Station WBBM

The American Medical Association broadcasts on Tuesday and Thursday mornings from 8:55 to 9 o'clock, central standard time, over Station WBBM (770 kilocycles, or 389.4 meters).

The subjects for the week are as follows:

December 12. Bunny's Revenge.
December 14. Influenza.

There is also a fifteen minute talk sponsored by the Association on Saturday morning from 9:45 to 10 o'clock over Station WBBM.

The subject for the week is as follows:

December 16. Do You Take Your Hearing for Granted?

THE CLEVELAND SESSION

Special Exhibit on Epidemic Encephalitis

The Committee on Scientific Exhibit has arranged for a special exhibit on epidemic encephalitis for the Cleveland Session, June 11-15, 1934. The exhibit will be in charge of the following committee:

Dr. R. C. Williams, United State Public Health Service, Washington, chairman.
Dr. James P. Leake, Washington.
Dr. R. S. Muckenfuss, St. Louis.

A competent corps of demonstrators will assist the committee, and pamphlets on epidemic encephalitis will be distributed.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Certain Eyelash Dyes Prohibited.—All eyelash dyes containing aniline or coal tar products are prohibited from being offered for sale on the San Francisco market, by an order of the San Francisco Department of Public Health, effective November 15. Recent events, traceable to one product, have directed attention to the potential danger offered by the use of any of these preparations.

Annual Registration Due January 1.—All practitioners of medicine and surgery holding licenses to practice in California are required by law to be registered annually on or before January 1, with the secretary-treasurer of the board of medical examiners, and at that time to pay a fee of $1. Failure to pay the required fee within sixty days after January 1 works an ipso facto revocation of a license. Thereafter a license may be reissued only after application and the payment of a $10 penalty.

Pediatric Meeting.—The second annual meeting of the American Academy of Pediatrics (region IV) took place in Los Angeles, November 10-11. The guests of honor were Drs. Jay I. Durand, Seattle, and Clifford G. Grulee, Chicago. Physicians presented the following program:

Clarence M. Hyland, Tumors of the Kidney Region in Infancy and Childhood.
Madeleine A. Fallon, Iron Deficiency Anemias.
William M. Happ, Leukemia with Leukopenia.
Henry Dietrich, Tuberculosis in Childhood.
Howard R. Cooder, Cerebrospinal Syphilis in Childhood.
Howard F. West, Problems in Juvenile Diabetes.
Ezra S. Fish, Calcinosis.
Hugh K. Berkley, Congenital Idiopathic Edema (Milroy's Disease).
Victor E. Stork, Application of Psychiatric Social Work to Pediatric Practice.
Egbert Earl Moody, Postinfectious Encephalitis.
Phillip E. Rothman, Observations on Therapy in Erysipelas.
Norman K. Nixon, Bacillary Dysentery in Children.
Mary F. Bigler, Serum Treatment in Sporadic Meningitis.
Oscar Reiss and Forrest N. Anderson, among others, Place of the Child Guidance Clinic in Pediatrics.

COLORADO

Hospital Meeting.—The ninth annual meeting of the Colorado Hospital Association was held in the Cosmopolitan Hotel, Denver, November 15-16. Among others, the following speakers participated:

Dr. Isadore D. Bronfin, Denver, Protection of Employees in Tuberculosis Hospitals and Sanatoria.
Dr. Maurice H. Rees, Denver, Hospital Public Relations.
Mr. Walter G. Christie, Denver, Hospital Wage Standards and Vacation and Sick Leave Allowance.
Dr. Thomas Donald Cunningham, Denver, What Hospital Diets Should Contain.
Mr. Robert B. Witham, Denver, Hospital Social Service.
Mr. William S. McNary, Denver, Does Colorado Need Local Hospital Councils?

CONNECTICUT

Annual Registration Due During January.—All practitioners of medicine and surgery holding licenses to practice in Connecticut are required by law to be registered during January, with the state department of health, and at that time to pay a fee of $2. Licentiates who have retired from active practice or who live out of the state must register annually but need not pay a fee. A practitioner failing to register is subject to a fine of not more than $5.

Yale's Governing Board Reorganized.—Announcement of the reorganization of the governing board of Yale University School of Medicine during the past year was made, November 20. The new arrangement places the responsibility more definitely and represents more adequately the many interests of the institution, it is believed. Two major sections of the board of permanent officers have been formed: the committee on the school of medicine and the committee on biologic sciences. The first deals primarily with problems of medical education and is subdivided into the committee on clinical subjects and the committee on preclinical subjects, while a prudential committee representing both of these subdivisions has been created to facilitate conduct of the regular business of the school. The committee on the biologic sciences deals with problems of graduate education as distinct from medical education. As a standing committee of the school of medicine and the graduate school, it effects close cooperation between the two schools concerned with graduate work in the biologic sciences.

DELAWARE

Society News.—Dr. Collier F. Martin, Philadelphia, spoke on "Proctology and the General Practitioner" before the New Castle County Medical Society, November 21.——Dr. Leonard D. Frescoln, Philadelphia, addressed the Delaware State Education Association in Newark, November 10, on "Coupling Up Kinesiology with Prescribed Physical Exercises."——The Delaware Academy of Medicine, Wilmington, was addressed, November 2, by Drs. Frederic Maurice McPhedran and Esmond R. Long, Philadelphia, on "Pulmonary Tuberculosis in Children" and "The Nature and Significance of the Tuberculin Reaction," respectively.

FLORIDA

Annual Registration Due January 1.—All practitioners of medicine and surgery holding licenses to practice in Florida are required by law to be registered annually on or before January 1, with the secretary of the state board of health, and at that time to pay a fee of $1. A licentiate failing to register annually is subject to a fine of not more than $50.

ILLINOIS

State Laboratory at University.—A branch diagnostic laboratory has been established at the University of Illinois, Urbana, by the state department of public health, in response to a demand from physicians in the central eastern part of the state. The new branch, under the supervision of Fred W. Tanner, Ph.D., is prepared to do all diagnostic tests ordinarily performed in public health laboratories, including examinations for typhoid, undulant fever, tularemia, syphilis, malaria, tuberculosis, gonorrhea, Vincent's angina, diphtheria and rabies. Other diagnostic laboratories of the state department are located in the Capitol Building, Springfield; Southern Illinois State Normal University, Carbondale, and 1849 West Polk Street, Chicago. Specimens for the new branch should be addressed to the state diagnostic laboratory, room 360, Chemistry Building, Urbana.

Chicago

Society News.—Dr. Isaac A. Abt delivered the presidential address before the Institute of Medicine of Chicago, December 5, on "Treatment of Whooping Cough: A Study in the History of Therapeutics."——At a meeting of the Chicago Society of Internal Medicine, November 27, Dr. Joseph L. Miller, among others, spoke on "Chronic Rheumatic Diseases of the Spine."——Dr. Agnes Beulah Cushman discussed "Pituitary Headaches" before the Chicago Council of Medical Women, December 1.——Speakers before the Chicago Surgical Society, December 1, included Drs. Alfred W. Adson and Winchell McK. Craig, Rochester, Minn., on "Diagnosis and Surgical Treatment of Spinal Cord Tumors" and "Surgery of the Sympathetic Nervous System," respectively.——The Chicago Laryngological and Otological Society was addressed, December 4, by Drs. Henry C. Sweany on "Pathogenesis and Diagnosis of Bronchogenic Carcinoma" and Francis L. Lederer on "Pathogenesis and End Results of Sinus Thrombosis."——The Chicago Medical Society heard Dr. Lloyd D. Felton, Boston, speak on "Limitations of Serum Treatment," December 6, in a symposium on pneumonia. Drs. Frederick Tice and Charles Schott discussed the medical and pediatric aspects, respectively. At a dinner meeting, Dr. Felton reviewed the "History and Development of Serum Treatment of Pneumonia." A symposium on genito-urinary diseases from the viewpoint of the general practitioner will be presented before the society, December 13, by the faculty members of the University of Illinois College of Medicine.——Speakers before the Chicago Pathological Society, December 11, will include Drs. Theodore E. Walsh and William E. Adams on "Observations on the Cytology of Nasal Polyps" and "Vascular Changes in Chronic Experimental Atelectasis of the Lungs," respectively.

INDIANA

Aviators' Beacon on Hospital.—An aviation beacon atop the Methodist Episcopal Hospital, Indianapolis, was dedicated, November 9. The light stands 250 feet above the ground and 80 feet above the roof of the building. Erection of the hospital beacon, believed to be the first in the United States, is said to have been suggested by one on St. Bartholomew's Hospital, London, which has been burning since 1847, first an oil light

and now an electric signal. Mrs. Mary Hanson Carey, Indianapolis, donated the funds for the beacon. The dedication program included as speakers Dr. William N. Wishard on "The Ideal of the Medical Profession in the Modern Hospital"; Alden B. Mills, Chicago, managing editor of *Modern Hospital;* N. E. Davis, secretary, board of hospitals and homes, Methodist Episcopal Church, Columbus, Ohio, and Robert Hahn, Evansville, president, Indiana Hospital Association. The beacon will serve as a guide for aviators.

IOWA

Outbreak of Typhoid.—One death and twelve cases of typhoid were recently reported in Corydon, the most serious outbreak in Iowa this year, according to the state medical journal. An investigation excluded the city water supply as the source of infection but revealed that nine of the patients used milk from the same dairy and two others lived on a farm adjacent to it. The dairyman distributed raw milk, although caps on the bottles were labeled "grade A pasteurized." His wife gave a history of typhoid in childhood, and an outbreak of the disease in 1918 was traced to the same dairy. Although the woman is regarded as a typhoid carrier, several laboratory examinations at the time of the report failed to demonstrate a carrier state.

Society News.—Dr. Frank H. Lahey, Boston, will speak before the Linn County Medical Society, Cedar Rapids, December 21, on "Treatment of Thyroid Disease and Associated Conditions."——At a meeting of the Southeastern Iowa Medical Society, Dr. John I. Marker, Davenport, was elected president; the principal speaker was Dr. Edwin F. Schneiders, Madison, Wis., on "Gynecologic and Obstetric Emergencies." Burlington was designated as the place for the next annual meeting in October, 1934.——The program of an all day meeting of the Iowa Academy of Ophthalmology and Otolaryngology in Des Moines, December 5, was devoted to presentation of case histories with demonstrations.——Dr. Zella White Stewart, Iowa City, discussed allergy before the Des Moines District Dental Society, December 4. The Des Moines Academy of Medicine and Polk County Medical Society was invited to attend.

LOUISIANA

Annual Renewal Due January 1.—All practitioners of medicine and surgery holding certificates to practice medicine in Louisiana are required by law to renew those certificates annually on or before January 1, with the secretary-treasurer of the state board of medical examiners, and at that time to pay a fee of $2. The board may by unanimous vote revoke any certificate not renewed.

MAINE

Society News.—Dr. Douglas Quick, New York, addressed the Cumberland County Medical Society in Portland, October 27, on "A General Survey of Cancer Therapy."——The Knox and Waldo county medical societies were the guests of the Kennebec County Medical Association in Waterville, October 19; speakers included Drs. Ara B. Libby, Gardiner, on undulant fever, and Charles B. Popplestone, Rockland, neurosyphilis.——Dr. Reginald Fitz, Boston, discussed "Auto-Endocrinology" before the Penobscot County Medical Association in Bangor, October 17.——Speakers before the Somerset County Medical Association in Bingham, October 26, were Drs. Eugene L. Hutchins, North New Portland, and Edward E. Boyer, Waterville, on pneumonia and fractures, respectively.——At a meeting of the York Medical Society in Sanford, October 18, Dr. Edward A. Greco, Portland, discussed "Significance of Childhood Tuberculosis."

MICHIGAN

Annual Highland Park Clinic.—The Highland Park Physicians' Club conducted its eighth annual clinic, December 6, with the presentation of the following program:

Dr. Harry R. Foerster, Milwaukee, Common Fungus Infections of the Skin: Their Diagnosis and Treatment.
Dr. Thomas C. Galloway, Evanston, Ill., Surgical Diathermy in Malignancy.
Dr. Carl A. Hedblom, Chicago, Thoracic Tumors.
Dr. Bransford Lewis, St. Louis, Renal Colic Without Pain.
Dr. Isadore Pilot, Chicago, Pathogenesis of Rheumatic Conditions: A Modified Conception of Focal Infection.
Dr. Edward Speidel, Louisville, Difficult Deliveries.
Dr. Roy Glenwood Spurling, Louisville, Spasmodic Torticollis.
Dr. Robert Sonnenschein, Chicago, Reflex Signs and Symptoms of Otolaryngology, with Reference to General Literature.

Erection of a Cancer Hospital Opposed.—At a meeting, November 3, the council of the Wayne County Medical Society unanimously went on record against the proposed erection of a cancer hospital at Eloise. The council believes that the new cancer hospital is not necessary, because less than 50 per cent of the hospital beds in the Detroit area are occupied and because all the private hospitals of Detroit have well equipped cancer services, and a sufficiently large number, the latest high voltage apparatus. The society maintains that since the cancer services in Detroit hospitals are doing 75 per cent of their work on cancer patients free, it cannot justly be claimed that a special cancer hospital is necessary to take care of indigents; and, further, that statistics show that no better results are obtained in the special cancer hospital than in the private general hospital. These objections with others formed the basis of the council's stand against the proposed construction.

MINNESOTA

Annual Registration Due During January.—All practitioners of medicine and surgery holding licenses to practice in Minnesota are required by law to be registered annually during January, with the secretary of the board of medical examiners, and at that time to pay a fee of $2. A licentiate who practices without renewing his license is guilty of a misdemeanor and is subject to prosecution.

Layman's Health Audit Service Declared Unlawful.—In a decision, November 3, the supreme court of Minnesota declared that the "health audit service," conducted by John Granger, a layman, furnishing urinalyses and blood pressure tests through the medium of a licensed physician doing the actual work, was unlawful. Granger sought an injunction in August, 1932, to restrain the state board of medical examiners from interfering with the conduct of this business. Although a licensed physician did the actual work, Granger sometimes advised or passed on to the "subscriber" advice from the pathologist as to whether the results showed a normal or abnormal state of health and whether the "subscriber" should see a physician, in some cases advising as to diet, exercise and habits. The court held that the plaintiff was engaged in the diagnosis or analysis of the condition of human health, which constituted a violation of the basic science law, and that advising the "subscriber" for a fee as to habits of diet, exercise or living, although not accompanied by any medical prescription or treatment, was a violation of the medical practice act.

MISSOURI

New Officers for Clinical Society.—Dr. Rexford L. Diveley has been elected president of the Kansas City Southwest Clinical Society; Dr. Thomas G. Orr, vice president; Dr. Herbert S. Valentine, treasurer, and Dr. Hugh Wilkinson, secretary. Dr. Ira H. Lockwood was named director of clinics, and Dr. Edward H. Skinner, editor of the society's *Monthly Bulletin.*

Dr. Goldstein Receives St. Louis Award.—Dr. Max A. Goldstein, founder and director, Central Institute for the Deaf, St. Louis, was presented with the second annual St. Louis Award, November 4, "in recognition of his achievements and research in dealing with the problems of the deaf." The award, $1,000 in cash and a certificate, is made each year to "the resident of metropolitan St. Louis who contributed the most outstanding service to the development or performed such service as to bring honor to the community." The source of the award is a $10,000 fund, established anonymously by a St. Louisan. Organizations of which Dr. Goldstein has been president include the American Otological Society, 1927; American Laryngological, Rhinological and Otological Society, 1930, and the American Academy of Ophthalmology and Otolaryngology, 1902. He was recently awarded the gold medal of the American Laryngological, Rhinological and Otological Society for his work in the study and rehabilitation of the deaf child.

NEW YORK

Annual Registration Due January 1.—All practitioners of medicine and surgery in New York are required by law to apply annually, on or before January 1, to the secretary of the board of medical examiners for a certificate of registration on blank application forms to be furnished by him and to pay at such time a fee of $2. The law authorizes the secretary of the board to permit secretaries of duly incorporated medical societies to act as his representatives to receive and transmit to him such application forms and fees. Practitioners are subject to severe penalties for failing to register and for continuing in practice thereafter.

Health at Utica.—Telegraphic reports to the U. S. Department of Commerce from eighty-five cities with a total population of 37 million, for the week ended November 25, indicate

that the highest mortality rate (18.7) appeared for Utica and the rate for the group of cities as a whole was 11.5. The mortality rate for Utica for the corresponding week of 1932 was 11.2 and for the group of cities, 11. The annual rate for the eighty-five cities was 10.8 for the forty-seven weeks of 1933, as against a rate of 11 for the corresponding period of the previous year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

New York City

Third Harvey Lecture.—Dr. Ross G. Harrison, Sterling professor of biology, Yale University School of Medicine, New Haven, will deliver the third Harvey Lecture of the season at the New York Academy of Medicine, December 14. His subject will be "Heteroplastic Grafting in Embryology."

New Psychiatric Unit at Bellevue.—Formal dedication ceremonies for the new Bellevue Psychiatric Hospital, First Avenue and Thirtieth Street, were held, November 2, at a meeting of the New York Society for Clinical Psychiatry in the auditorium of the institution. The hospital was opened last May with equipment for 375 patients, but its ultimate capacity will be 600. When completed, the eight-story building will give wide scope for modern methods of investigating mental disorders. Dr. Abraham A. Brill, president of the psychiatric society, presided at the meeting, at which speakers included James H. Fay, acting commissioner of hospitals, and Drs. George H. Kirby and Smith Ely Jelliffe.

Gifts to New York University.—Chancellor Harry Woodburn Chase of New York University has recently announced the following gifts, among others, to the university since May for medical purposes:

Many donors, through Mrs. Anne Tiffany, for the Cardiac Clinic Endowment Fund, $22,750.
Carnegie Foundation for the Advancement of Teaching for retiring allowances, $10,101.
Anonymous donor for the Neurological Research Laboratory, $10,000.
Carnegie Corporation of New York for the medical college, $8,750.
Mead Johnson and Company, for vitamin research, $2,000.
Various donors for research in pneumonia, $1,400.
Lederle Laboratories, Inc., for experimental work on liver extract, $1,250.
Lucius N. Littauer, $1,000, for studies in prevention and cure of pneumonia.
New York Foundation, for research on infantile paralysis, $1,000.

Hospital Deficits.—Fifty of the fifty-six hospitals in the United Hospital Fund have reported an aggregate deficit of $4,553,995 after applying their income from endowment on the year's expenses. These hospitals report operating expenses aggregating $26,359,674 for the year, with operating income of only $17,916,699. Income from endowment, which is less than usual, amounts to $3,745,983, leaving a large deficit to be made up by public subscription, for which the fund is now making its annual appeal. Individual hospitals reported that returns from investments and private contributions have been greatly diminished, while persons who formerly would have been private or semiprivate patients are now using the wards or staying at home. Increase in free work and increased credit granted to patients have seriously embarrassed most of them. One hospital reported that its bills had not been paid for three months and employees had had to wait for their wages in November.

Society News.—Drs. George A. Wyeth and Anthony Bassler addressed the New York Endocrinological Society, November 22, on "Embryology and Development of the Endocrine Glands" and "Internal Secretions of the Pancreas," respectively. ——A symposium on aniline tumors of the bladder was presented before the New York Society of the American Urological Association, November 23, by Drs. Russell S. Ferguson, George H. Gehrmann, Lang W. Anderson, Douglas M. Gay and Victor D. Washburn, Wilmington, Del.——Discussions of syphilis made up the program of the Medical Society of the County of New York, November 27; speakers were Jacob A. Goldberg, Ph.D., and Drs. George Miller MacKee, Abernathy Benson Cannon and Leon H. Cornwall.——The Association of Italian Physicians in collaboration with the Italian Historical Society held a commemorative meeting in honor of Bernardino Ramazzini at the New York Academy of Medicine, November 20; Dr. James J. Walsh spoke on "The Practical Genius of the Italians"; Dr. James V. Ricci, "Origins of Italian Medicine," and Angelo M. Sala, "Bernardino Ramazzini, His Life and Works."——Dr. Jacob Earl Thomas, Philadelphia, addressed the Society for the Advancement of Gastro-Enterology, November 22, on "Pyloric Reflexes with Reference to the Regulation of Gastric Emptying."

NORTH CAROLINA

Society Presents Gold Headed Cane.—The Davidson County Medical Society entertained Dr. Willis J. Vestal, Lexington, at a dinner, October 31, celebrating his fiftieth anniversary in the practice of medicine. Dr. Jarvis R. Terry, Lexington, was toastmaster. Speakers who paid tribute to the physician were Drs. Reno K. Farrington, Thomasville, Charles R. Sharpe, Lexington, Isaac H. Manning, Chapel Hill, John T. J. Battle, Greensboro, and John T. Burrus, High Point. Dr. Burrus presented him with a gold headed cane, the gift of the society.

NORTH DAKOTA

Annual Registration Due January 1.—All practitioners of medicine and surgery holding licenses to practice in North Dakota are required by law to be registered annually on or before January 1, with the secretary-treasurer of the board of medical examiners, and at that time to pay a fee of $5, if a resident of North Dakota, or $2, if a nonresident. A practitioner may not practice if he has not registered. If he nevertheless continues in his practice his license may be revoked and can be reinstated thereafter on the payment of the delinquent fees and $0.50 for each month of default.

OHIO

Hospital News.—Dr. Norman F. Miller, professor of obstetrics and gynecology, University of Michigan Medical School, Ann Arbor, delivered the first of a series of clinical lectures to be given at Detwiler Memorial Hospital, Wauseon, November 23, on "Bleeding in the Last Trimester of Pregnancy." The lectures are sponsored by the Commonwealth Fund of New York.

Centennial of College of Medicine.—The one hundredth anniversary of the founding of what is now the Ohio State University College of Medicine, Columbus, will be celebrated, March 3, 1934. Plans are under way for a reunion of graduates of the various schools which have been merged through the century to form the present medical school. A "One Hundred Year Book" will be published under the auspices of the faculty and the alumni committee, containing the history of the school and a record of the graduates. Subscriptions at $10 are now being received by the sponsors. The college of medicine is the successor of five earlier schools, according to official records. The first was Willoughby Medical College, founded at Willoughby, March 3, 1834. Later it moved to Columbus and continued until 1848, when it became Starling Medical College. In 1892 Starling absorbed the Columbus Medical College, founded in 1875, and in 1907 Starling merged with Ohio Medical University to form Starling-Ohio Medical College. The school was operated under that name until 1914, when the College of Medicine, Ohio State University, was founded and absorbed the property and the staff of the Starling-Ohio Medical College. Dr. John H. J. Upham is dean of the college of medicine.

PENNSYLVANIA

Hospital News.—Montefiore Hospital, Pittsburgh, held its annual scientific day, November 25, with Dr. Leopold Lichtwitz, New York, as the guest of honor. Dr. Lichtwitz conducted a clinic on diseases of the kidneys, endocrine disease and diseases of metabolism and, following a dinner in the evening, delivered an address on "Angiospastic Diathesis."

Annual Registration Due January 1.—All practitioners of medicine and surgery holding licenses to practice in Pennsylvania are required by law to register annually, on or before January 1, with the board of medical education and licensure in the department of public instruction and to pay a fee of $1, or such fee as may be fixed by the department of public instruction. A practitioner who fails to register and who continues to practice is subject to a fine of from $10 to $100.

Dinner to Dr. Jackson.—The Lackawanna County Medical Society gave a testimonial dinner, November 14, to Dr. Byron H. Jackson, Scranton, president of the Radiological Society of North America during the past year. Dr. Eugene L. Pendergrass, Philadelphia, was the principal speaker and Dr. William J. Corcoran, Old Forge, was toastmaster. Among the guests were Drs. George E. Pfahler, Henry K. Pancoast, William Edward Chamberlain, Nathaniel W. Winkelman and John T. Farrell, Jr., Philadelphia; Francis Carter Wood, New York; John M. Keichline, Huntingdon; James John Quiney, Easton, and Sydney J. Hawley, Danville. A bound volume of "prescriptions" expressing good wishes of his colleagues was presented to Dr. Jackson.

Philadelphia

Hospital News.—Northwestern General Hospital has been taken over by Temple University Hospital and will operate as a separate unit in the university building.

Mütter Lecture.—Dr. Arthur B. Duel, New York, delivered the annual Mütter Lecture of the College of Physicians of Philadelphia, December 6, on "The Pathology and Surgical Treatment of Facial Paralysis." At this meeting of the college, a portrait of the late Dr. Hobart A. Hare was presented by Dr. George E. de Schweinitz, on behalf of the artist and donor, Mrs. James H. Hutchinson.

County Society Seminars.—The second course of postgraduate seminars under the auspices of the Philadelphia County Medical Society concerns diabetes. Dr. Edward S. Dillon delivered the first lecture, December 8, on medical and pathologic aspects. Other speakers announced are:

Dr. Eldridge L. Eliason, Surgical Aspect of Diabetes.
Dr. Ralph M. Tyson, Diabetes in Children.
Dr. Leonard G. Rowntree, A Consideration of the Ductless Glands.
Dr. Michael G. Wohl, Obesity.
Dr. W. Wayne Babcock, Thyroid Gland: Surgical Aspect.
Dr. John T. Farrell, Jr., Thyroid Gland: Influence of X-Rays.

At the final meeting of the series, Dr. Moses Behrend will lead a round table discussion.

RHODE ISLAND

Society News.—Dr. Hiram Houston Merritt, Jr., Boston, delivered an address at the State Hospital for Mental Diseases, Howard, October 30, on "Diffused Sclerosis."——At the meeting of the Providence Medical Association, November 6, Dr. Henry F. McCusker spoke on "Injuries to the Coccyx" and Drs. Reuben C. Bates, Stanley S. Freedman and William P. Buffum presented reports from the allergy clinic of the Rhode Island Hospital. Dr. William N. Hughes addressed the association, December 6, on treatment of neurosyphilis, and Dr. Paul Appleton presented a motion picture demonstration of congenital deformities.

TEXAS

Annual Registration Due January 1.—All practitioners of medicine and surgery holding licenses to practice in Texas are required by law to be registered annually on or before January 1, with the state board of medical examiners, and at that time to pay a fee of $2. If a practitioner fails to renew his registration within sixty days after January 1, his license is suspended.

Instruction in Malaria Microscopy.—Baylor University School of Medicine, Dallas, will present its second malaria microscopy school, December 20-21, under the supervision of Drs. Walter H. Moursund, dean; Hardy A. Kemp, associate professor of bacteriology; John W. Brown, state health officer; Charles D. Reece, state epidemiologist, and Charles P. Coogle, malariologist of the U. S. Public Health Service, and others.

Annual Public Health Meeting.—Dr. Thomas J. McCamant, health officer of the city and county of El Paso, was elected president of the Texas Public Health Association at the annual meeting in Mineral Wells, November 10. Among the speakers were Dr. Horton R. Casparis, Nashville, Tenn., on prevention and control of tuberculosis, and Miss Jessamine Whitney, New York, on vital statistics in Texas. The next annual session will be held in Abilene.

GENERAL

Society Disbanded.—At the recent meeting of the Central States Pediatric Society in Chicago in September, it was voted to disband the organization. The annual meeting will be replaced by a regional meeting of the American Academy of Pediatrics. The society was seventeen years old.

Change in Status of Licensure.—The Nevada State Board of Medical Examiners reports the following actions on licenses at a recent meeting:

Dr. Charles Mortimer Stewart, Los Angeles, license revoked on grounds of unprofessional conduct.

Dr. Barton Willard Johnson, Fond du Lac, Wis., license restored after investigation had convinced the board that it had been revoked without adequate cause. Dr. Johnson had been licensed in Nevada in 1899 and the license revoked in 1903. The board reported that no record was found of any prosecution against him for any offense prior to the revocation and also that no notice of the action was sent to Dr. Johnson.

Results of Board Examination.—Seventy-nine candidates were examined by the American Board of Otolaryngology in Boston, September 16, and thirteen were conditioned or failed. The board will hold an examination in Cleveland, June 11, 1934, during the meeting of the American Medical Association and another at Butte, Mont., in connection with the meeting of the Pacific Coast Oto-Ophthalmological Society early in the summer of 1934. The date for the latter has not been determined. Prospective applicants for certificates should address the secretary, Dr. William P. Wherry, 1500 Medical Arts Building, Omaha, for application blanks.

Orthodontists Deplore Misinformation Published.—The American Society of Orthodontists at its last annual session adopted a resolution deploring misinformation and inaccurate advice in newspapers and other publications concerning malocclusion and associated deformities of the teeth. The advice given is frequently not in accord with the best practice and is also objectionable because, according to the resolution, it is impossible to make general statements of value on this subject owing to the fact that no two cases are alike. The society authorized the formation of a committee on public relations to cooperate with editors in preparation of accurate and useful information and to establish contacts with the public through the press, the radio and lectures before suitable groups.

Stolen—Anesthesia Research Apparatus.—Dr. Paul M. Wood, 131 Riverside Drive, New York, reports that about $1,500 worth of anesthesia apparatus and materials were stolen from his automobile, November 26. Much of the apparatus was especially built for research and is not of standard pattern. Every piece of metal was stamped with Dr. Wood's name or initial. Among the items taken were one gas-oxygen machine of the midget type Foregger make, special with seven yokes; two tanks of high pressure oxygen; one tank each of carbon dioxide, carbogen, nitrous oxide, ethylene and cyclopropane; several types of masks; two experimental fine control high pressure gas machines; several blood pressure outfits; five sets of spinal and regional anesthesia equipment with assorted needles; several laryngoscopes with tracheal catheters; one avertin outfit with avertin, and one resuscitation outfit. Money and other articles of value in the automobile were not touched. Dr. Wood would appreciate being notified at once should any physician be offered equipment bearing his name or scratched with the initial W. Reward is offered for any and all equipment recovered.

Tuberculosis in American Cities in 1932.—The average death rate from tuberculosis in fifty-nine American cities with an approximate population of 33,000,000 was 56.3 per hundred thousand in 1932, as compared with 174.4 in 1910. Frederick L. Hoffman, consulting statistician, Newark, N. J., has recently made a detailed study of the mortality in 177 cities for 1931 and 1932. He found that in 115 cities the rate had decreased in 1932, in 60 it had increased and in 2 remained the same, as compared with rates for 1931. The five cities with the highest rates in 1932 were El Paso, Texas, 203.1; Little Rock, Ark., 154.4; Lexington, Ky., 154.3; Charleston, S. C., 151.3, and Augusta, Ga., 133.8. The report emphasizes two factors that complicate analysis of local tuberculosis mortality; namely, the racial factor and the concentration of tuberculous patients because of climatic advantages. The latter explains the high rate in El Paso and the former is also important because of the Mexican element in that city's population. These factors are also evidenced in reports of several states for 1932. New Mexico had the highest rate, 130.4, obviously because of the tuberculous concentrated there and also because of the high death rate among the Indians. States with the next highest rates among the fifteen for which reports were available were Delaware, 62.9; Georgia, 61.7; Arkansas, 59.3, and New Jersey, 55. North Dakota had the lowest of the group, 24.4. Among the five largest American cities, Los Angeles had the highest rate, 77.1, and Chicago the lowest, 49.8. Here again the high rate in Los Angeles is attributed to the presence of numerous tuberculous patients and partly to the Mexican element. The lowest rates among the cities studied were Rockford, Ill., 10; Massillon, Ohio, 10; Grand Rapids, Mich., 10.8; Medford, Mass., 10.9, and Pontiac, Mich., 11.4.

CORRECTION

Medical Students in Rome.—Figures received from the Regia Università di Roma (THE JOURNAL, August 26, p. 687, table 14) indicated that there were 132 American students enrolled during 1932-1933 and that 207 students completed the course. These figures being questionable, further investigation was made and it is now ascertained that the total number of students from the United States registered in the faculty of medicine was 188; the number who graduated during the summer session of the academic year 1932-1933, 7, and the number of students who applied for permission to take the final degree examination during the current fall session, 6.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 18, 1933.

Chronic Typhoid Carriers

The Medical Research Council has published a report on chronic typhoid carriers by Prof. C. A. Browning, F.R.S. A temporary carrier state may follow an acute attack of typhoid, and it is difficult to assign a limit to the duration of the excretion of specific organisms. A large proportion cease to excrete within six months of convalescence, and this appears to hold particularly for Bacillus paratyphosus A and B. The high incidence suggests the need of temporary precautions against the spread of infection during the convalescent as well as the acute phase. It is also important to remember that excretion in the feces, and especially in the urine, may set in several months after convalescence. It is agreed that those who continue to excrete bacilli after a year will not become cured spontaneously but become permanent carriers. These appear to amount to from 2 to 5 per cent of all cases of typhoid among British soldiers who have been invalided from abroad; but when the disease is mild, as in England, the rate is probably lower. Chronic carriers may be fecal or urinary excreters. The fecal excreter may be a biliary carrier, harboring the bacilli in the gallbladder, liver or bile ducts; or a true intestinal carrier, in whom the bile is not infected, the bacilli persisting in the intestinal tract. The diagnosis of the latter depends on persistently positive cultures from the feces or intestinal contents and negative from the bile. It is not known whether the bacillus persists simply as one of the intestinal flora or whether the intestinal tissues are invaded. Chronic fecal carriers are usually married woman, aged 34 and onward. There are four or five female carriers to one male. In the cases of biliary carriers it is important to know whether the bacilli persist exclusively in the gallbladder or infect the bile ducts and liver tissue. The association of gallstones with the carrier condition is well recognized. Chronic cholecystitis has been found in a large portion of the carriers operated on.

Urinary carriers are often found in the latter part of the pyrexial stage of the disease or early in convalescence. But only a small proportion become chronic carriers, and, unlike the biliary carriers, these are not preponderatingly of one sex. This bacilluria is now held to be due to rupture of focal lesions into the renal tubules. If the bacilli persist in the urine, some pathologic condition of the urinary tract is the rule and the nidus is usually in the kidney or the pelvis. The bacilli may persist for years and cause extensive damage to the kidneys.

The chances of the spread of infection from patients suffering from typhoid have been greatly reduced by hygienic measures. In large cities the cases are mainly sporadic. They generally are attributed to a chronic carrier, especially in rural areas, where they seem to be increasing in consequence of the tendency of city dwellers to make weekly excursions into the country. An important fact is that a carrier may transmit infection only at intervals, which may be separated by noninfective periods of years. But it seems unlikely, from the investigations of Browning and others, that the negative periods exceed more than six or twelve months.

Vaccination has not been found highly effective in preventing the persistence of organisms during convalescence, but better results may be obtained from the potent strains now available. For the control of carriers, Browning thinks that there should be compulsory powers for examination of the blood, feces and urine. If a carrier is detected, his activities should be controlled and he should be prevented from handling foodstuffs. In Scotland the local authorities have power to remove the carrier to a hospital or to isolate him. In England he can only be prevented from being employed in the preparation or sale of food. Cholecystectomy has proved successful in curing twenty-eight out of thirty-eight fecal carriers.

Progress in Radium Therapy

The Medical Research Council has issued a report summarizing the work of the research centers in 1932. Several of these indicate that skin tolerance—an important matter with the large quantities of radium now available—does not entirely depend on the time over which a dose is fractioned but varies with the region of the body and the blood supply. Thus the scalp seems to be about 50 per cent more tolerant than other parts of the skin. Regions with a depleted blood supply react less than normal areas, and the face is more tolerant than the neck. The advantage of spreading the dose over a long period is being more and more widely recognized. Hence at the Radium Institute many of the applicators of high content have been dismantled and smaller units have been constructed.

CANCER OF THE CERVIX

A modified technic has been adopted for cancer of the cervix with satisfactory results. Intra-uterine and vaginal applications are still combined. By increasing the secondary screening of the vaginal applicators from 1 to 5 mm. it has been found possible to increase the dose without exceeding the limits of tolerance. Vulcanite or bakelite is now used instead of para rubber. The applicators are spheroidal or cylindric, with rounded ends, so that the pressure on the vaginal walls is more even. It is hoped that this will obviate the severe immediate reaction and delayed radium necrosis that used to occur when there was not sufficient room in the fornices for lead tubes, which were then inserted. The activity of the applicators has been increased from 10 mg. of radium to 15 millicuries of radon. The primary screening is 1.5 mm. of platinum, as before. The applicators are inserted under general anesthesia and left for forty-eight hours; forty-eight hours later a vaginal application is made in the knee-chest position under the influence of scopolamine and pantopon. A week after this combined application, another is given. The radon will be replaced by radium when more radium is available. The new dosage has not caused any local damage.

Food Poisoning Due to a Carrier

Two boys, aged 11 and 13 years, died after eating peas pudding (THE JOURNAL, November 11, p. 1572). Six persons in all were hospitalized suffering from severe abdominal pains after eating this pudding. At the inquest Mr. F. H. Teale, lecturer in bacteriology at University College, London, stated that he examined the supply of split peas from which the pudding had been made and found them free from infective bacteria. He also examined some of the peas obtained from the bag in which they had been cooked. In these he found dysentery bacilli. In a sample of the pudding he found quite a large number of these bacilli. A little girl had taken some of the pudding from the crock in which it was kept, with her fingers. Although she had no symptoms she was found to be infected with dysentery bacilli. She was therefore a carrier and seemed to have infected the pudding in taking it with her fingers—an unusual cause of food poisoning.

Pay of the Defense Services Pronounced Inadequate

The government recently appointed a commission to examine the reasons for the shortage of officers in the medical branches of the defense services. This has presented a report that has proved unsatisfactory to the Naval and Military Committee of the British Medical Association. The committee has informed the military authorities that, while agreeing that the medical

services should be reorganized to improve professional opportunity and add to economic advantages, it cannot approve of the proposed means. It regrets that the commission should have deemed it necessary to impose a condition, not within its terms of reference, that its recommendations should not involve any increase of expenditure. The main criticism is that the rates of pay and pensions are inadequate. The policy of the government has involved a reduction of pay, and the possibility of further reduction is a constant grievance to the serving officers and a strong deterrent to young physicians contemplating military service. It is urged that the minimum rate of pay should be that which existed before the 3 per cent reduction was made at the time of the national emergency. It is also urged that the short service system, advocated by the commission, would militate against efficiency.

Wood Sugar

Dr. Bergius, the inventor of the Bergius process of hydrogenating tar and coal, and one of the chemists principally responsible for the production of synthetic foods in Germany during the war, spoke at the Institution of Chemical Engineers on recent developments in the production of foods by chemical processes in Germany. Sugar could now be produced from wood on a commercial basis. The raw sugar in its primary form can after neutralizing be used as a carbohydrate cattle food. Experiments have given good results, especially in fattening pigs. The nutritive value is practically the same as that of barley flour. In countries in which wood is obtainable in large quantities—the Baltic states, Rumania and the northeastern part of the United States and Canada—wood sugar could be produced at a lower price than cane sugar in the tropics. In England, dextrose could be produced at an extremely low price from imported wood. The wood sugar represents not only a cattle food but a source for the production of yeast as well as dextrose for human consumption. For the overpopulated European countries wood may become an important factor toward independence of a food supply from abroad, in the same way that coal hydrogenation will in some degree insure independence of a foreign oil supply.

Tribute to Prof. Rutherford Morison

Rutherford Morison, emeritus professor of surgery in the College of Newcastle-on-Tyne, has reached his eightieth birthday. He has been one of the greatest and most original of surgical teachers. He is living in retirement on a farm in Scotland. On his birthday, a party of twelve of his old house surgeons, unknown to him, made a pilgrimage to his house. He was asked to come into his dining room, where they had assembled. The *British Medical Journal* states that as he entered his face was a study—surprise, delight and other emotions swept across it and also affected his visitors. Each was greeted by name and the senior made a presentation of two armchairs. He mentioned the professor's valuable writings, the great and many kindnesses they had all received from him, and his discovery of the "bipp" treatment of septic war wounds. The professor was in excellent form, and old jokes and old memories enlivened a meeting that will never be forgotten by those present.

Sir George Makins

Sir George Makins, consulting surgeon to St. Thomas's Hospital, and past president of the Royal College of Surgeons, has died in his eightieth year. In the Great War he was senior consulting surgeon to the British Expeditionary Force. He turned his experiences to account in an excellent research on wounds of blood vessels. He wrote the articles on rickets, diseases due to microbic infection and parasites in Treves's System of Surgery, and on thrombosis, embolism, phlebitis and surgical tuberculosis in Heath's Dictionary of Surgery. Among the many professional bodies of which he was a member may be mentioned the American Surgical Association. Though his name is not identified with any special doctrine or discovery of a striking character, he stood in the first rank by reason of his knowledge, judgment and character. Quiet and unassuming, he was esteemed and loved as much as any man could be. It was plain to every one that he never acted from any but the highest motives.

Sir Arthur Keith's Successor

Dr. John Beattie, associate professor of anatomy at McGill University, Montreal, has been appointed conservator of the museum and director of research at the Royal College of Surgeons, in succession to Sir Arthur Keith. Dr. Beattie is a graduate of Belfast University, where he passed the examination for B.Sc. in 1920 with first class honors and obtained first place, and the M.D. examination in 1927, when he was awarded the gold medal. He was for a time research assistant and demonstrator in anatomy at University College, London.

PARIS

(From Our Regular Correspondent)

Oct. 25, 1933.

The International Congress on Hygiene

The twentieth annual Congress on Hygiene was held in the Pasteur Institute, October 23. The minister of public health presided. The congress had an international character. The United States was represented by Dr. Hugh S. Cumming. The scientific sessions, over which Dr. Dequidt, head of the public health service, presided, devoted the whole time to discussion of two main topics: (1) the economic crisis and the great hygienic undertakings, and (2) coordination of the antituberculosis crusade and urbanism. Dr. Dequidt brought out in his inaugural address that the economic crisis compels one to view in a different light the sanitary undertakings in the various countries. Such undertakings are, however, about the most practicable that can be devised to give work to the unemployed. The expenditures are compensated for, to a great extent, by the money that is saved in the construction and support of hospitals and by a diminishing general mortality rate. Of the 14,000,000,000 francs ($840,000,000) that the French government has decided to use for large undertakings of general value, it is to be hoped that a large sum will be devoted to such health promoting projects as improvements in the drinking water, sewage systems, and better housing facilities. Dr. Rochaix, professor of hygiene at the Faculté de médecine de Lyon, and Mr. Vignerot, chief engineer for rural hygiene, both stated that France was behind some other countries in these matters but that great efforts had been made in France in recent years. Mr. Krul, director of the bureau of water supply in The Hague, pointed out that, in the Netherlands, the rural districts have today a much more abundant supply of drinking water but that great difficulties are encountered in supplying large centers of population, which are constantly growing. He suggested international collaboration in the use of the waters of the Rhine for the supplying of large cities. Dr. Salmon recommended that groups of rural communes unite in the establishment of a water system for each group, as is done in the region of Boulogne-sur-mer, with the government defraying a percentage of the cost. Mr. Giberton described a highly sensitive method for discovering traces of hydrogen sulphide in drinking water suspected of pollution. Mr. Fuss, head of the international bureau of labor of the League of Nations, advocated the use of the foregoing appropriations for the promotion of hygiene rather than for the increase of agricultural trial products, which in all countries engenders misery as a result of overproduction. Vignerot emphasized the need of improving hygienic conditions in the rural sections, which concerns, in

France, 65 per cent of the population, and where child mortality is exceedingly high. Dr. Barbary stressed the importance of soil pollution and the infection of fruits and vegetables consumed raw. Human excreta spread on fields from sewers is one of the most serious factors in the dissemination of typhoid and paratyphoid infections. He demanded that the spreading of sewage over agricultural fields be suppressed. Dr. Lutrario, the delegate from Italy, described the progress that had been made in his country in supplying drinking water, by means of aqueducts, wells, cisterns and the chlorination of river water. He referred to the aqueduct at Pouilles, a gigantic undertaking that supplies 260 inhabited centers, three entire provinces and parts of two other provinces, serving thus a total of 2,600,000 persons. At present, 4,463 Italian communes are supplied through aqueducts with spring water. Mr. Pittaluga, delegate from Spain, described the engineering feats accomplished to distribute the waters of the Ebro, Douro, Tagus, Guadiana, Guadalquivir, Segura and Jucar rivers. The French colonial ministry gave an account of what has been done to furnish drinking water for the inhabitants of overseas possessions.

On the second topic, "Organization of the Crusade Against Tuberculosis," there was not the same agreement. There was much discussion for and against the various systems proposed. Dr. Chodsko, from Poland, emphasized that the crusade against tuberculosis should not be based on the same principles in the rural sections as in urban centers. He stressed as of primary importance the protection of children and the supplying of cities with sufficient food. In his opinion, the tuberculous patient should not be separated from his family nor from his place of occupation longer than his condition permits, depending on the advice of his physician. He warned against tuberculous alcohol addicts, and particularly elderly tuberculous persons, who are frequently not sufficiently guarded against. Mr. MacDougal described the success of the sanitary village of Preston Hall, in England, where the chief physician determines the periods of rest and work in the adjoining industrial establishments. Convalescent patients may live here at least five years and pay only a nominal rent. Not a single death from tuberculosis occurred among the children during the first year of life. Leclerc and Dujarric-de-la-Rivière said that there are not enough special hospitals for the treatment of tuberculous patients who will not be admitted to the sanatoriums, which makes it necessary to retain many contagious patients at home with their families. On no account should tuberculous persons be kept in a general hospital. There is a need, they said, of well organized medical centers where patients might be received who otherwise would wait long before securing a place in a sanatorium. Mr. Armand-Delille told of the excellent results of the Grancher society, which finds homes in the country for children of tuberculous persons; it has many chapters in nearly all the departments of France. The children who remain with their families present a morbidity of 60 per cent and a mortality of 40 per cent. Among the children cared for by the Grancher society the morbidity has dropped to 0.3 per cent and the mortality to 0.1 per cent. Mr. Vitry advocated the early discovery of cases of tuberculosis among school children through the aid of the school physician. Mr. Messerli, from Switzerland, discussed the crusade against tuberculosis in his country. The law of 1928 brought about greater uniformity in the cantons of Switzerland, which, until then, had their own particular organization. Mr. Carrozzi, of the international bureau of labor, discussed the effects of work on the development of tuberculosis and stated that that influence is but slight as compared with other social causes. He advocated constant cooperation between the inspectors of labor with the dispensaries and the institutions carrying on the crusade against tuberculosis. Mr. Jullien made some criticism on the villages for the tuberculous, which are in reality, he said, only sanatoriums with separate pavilions. They are not practicable for persons of moderate income, or they require enormous subsidies. It would be better to favor the return of tuberculous persons to rural life and seek to improve, at the same time, the hygienic conditions in rural communities. Mr. Jullien and Mr. Sieur emphasized that for the examination of recruits about to enter the army radioscopy should be widely used, as is done in Switzerland.

International Congress on the Protection of Children

The Congrès international pour la protection de l'enfance divided its work into nine sections. "Prenatal Consultations" was the subject of an excellent paper by Convelaire and Lacomme, who pointed out the service that such consultations render in the prophylaxis of dystocias and the detection of syphilis. The second section devoted itself to the training of mothers to aid in combating child mortality. The interest of young women in these questions should be awakened after they finish school. Alaria of Turin and Valagussa of Rome explained how such education is given in Italy. Mr. Morquio of Montevideo stated that there has been a chair of puericulture in Uruguay for twenty years and that the results are excellent. Mr. Klein of Prague called attention to the part played by the radio in giving such instruction. Several members described the efforts put forth by the private organizations of which they are the directors. The third section, devoted to the second period of childhood, discussed the care of children aged 2 to 14. Many unofficial communications were offered on physical exercise, the value of playgrounds, periodic examinations with record cards kept up to date, breathing exercises, and even instruction in singing. The fourth section took up the supervision of the physical development of adolescents. In the fifth section, devoted to abnormal children, Dr. Boncour explained the practical methods of teaching mentally abnormal children a trade. The sixth section recommended giving social aid to children of school age. The seventh section considered the organization of instruction for illegitimate children and expressed the desire that such instruction be provided in all countries. The two other sections dealt with the protection of native children in the French colonies, on which a considerable number of communications were presented. There was also a lecture by Mr. Calmette on the use of the B C G vaccine against tuberculosis.

BERLIN

(From Our Regular Correspondent)

Oct. 23, 1933.

Federation of All "Biologic Physicians"

Dr. Wagner, federal director of the medical syndicates, has issued a proclamation to "all physicians of Germany who use biologic methods of treating disease." He points out that "the healing art comprises a much wider range and more methods than we physicians, as a rule, have learned." In spite of the advances of science, "it must be admitted that therapeutic methods that are not in harmony with the regular school sometimes present results that are not only equal but occasionally even superior to those secured by the regular practitioner." Although lacking the sanction of the profession, these methods have become an inherent possession of the whole population. Gradually groups of lay practitioners have been formed, and today one finds in Germany several societies employing similar methods. While special features separate them from one another, they have the common purpose of furthering man's use of nature's remedies. Physicians who apply chiefly "nature's remedies" are spoken of as "outsiders." It is planned now to combine the societies and leagues of the

latter into a federation uniting the so-called biologic physicians of all cults. Only after such a union, it is explained, will it be possible to test these therapeutic methods and to give them the recognition they deserve and to make them available for the training and further development of all physicians. It has been found that there is too little solidarity among these physicians to expect them to exert any marked influence on the medical profession as a whole or on the scientific conceptions of medicine.

The Causes of Death for 1931

The federal bureau of health has published an analysis of the statistics on the causes of death in the German reich for 1931. With the exception of the years 1927 and 1929, the number of deaths has declined continuously since 1924. The year 1931 brought a slight upward trend, which was, however, confined to the first quarter. According to the preliminary reports, the year 1932 brought a further decline. The rates for the years 1930-1932 (about 11 per thousand of population) are far below the proportion for the last prewar year (14.8 per thousand). In 1931 the most marked increase in any direction concerned influenza during the first quarter. The deaths from other infectious diseases showed a decline. That was particularly true of puerperal fever, scarlet fever, measles, rubella (German measles), diphtheria, pertussis, typhoid and erysipelas. The tuberculosis mortality remained essentially unchanged. The deaths from diseases of the circulatory organs and from apoplexy showed an increase. The constant increase in the number of deaths from cancer and other neoplasms was caused in part by the present unusually high representation of the older age groups and in part by more accurate determination of the causes of death. The cancer mortality of the year 1931 (12.2 per 10,000 of population) was the highest observed since 1924. The proportion for women was considerably higher than for men (13.1 as to 11.3).

Instruction in Heredity Made Compulsory in the Schools

A decree of the Prussian minister of public instruction concerning instruction in heredity and in ethnology in the schools went into effect, October 1. Until a final revision of the curriculum has been completed, it is decreed that, in the graduating classes of all schools, the following subjects must be incorporated in the curriculum: science of heredity, ethnology, eugenics, family history and demographic science. The essential basis for such instruction will be biology, for which, according to the decree, an adequate time (from two to three hours a week), if necessary at the expense of mathematics and foreign languages, must be found. Since biologic thinking is to constitute the basis of instruction in all branches, likewise other subjects, such as German, history and geography, must be brought into the service of such instruction. In all final examinations, every pupil must be tested as to his knowledge of the new subjects, and no person may be exempted from such tests. The minister will appoint commissioners to supervise the results of the examinations.

Prof. Werner Körte Honored

Prof. Werner Körte, who was for many years the surgical director of the Berlin Urbankrankenhaus, celebrated his eightieth birthday, October 21. His father had occupied a leading position in the medical profession in Berlin, and for that reason his son is still spoken of as "der junge Körte." Through his collaboraton with Albert Fraenkel, internist of the hospital, he was able to bring about a wide development of surgery of the internal organs, so that he was counted among the most eminent surgeons of Germany. His books on surgery of the liver and of the pancreas are still regarded as classics. From 1899 on he was editor of *Langenbecks Archiv für Chirurgie* and of the *Deutsche Gesellschaft für Chirurgie*, a post which he resigned only a few years ago.

Reorganization of Instruction in Hygiene

In institutions of higher learning an endeavor is being made to reorganize the instruction in hygiene. It is planned to make the instruction in ethnology and hereditary science of health a special branch of hygiene forming a part of general hygiene, whereas bacteriology is to be taught separately from hygiene. Ethnology and hereditary science of health are no longer to be regarded as auxiliary subjects of hygiene but will be given a standing consistent with their importance in that portion of the curriculum dealing with the care of public health.

Professor Dührssen's Death

The death, in Berlin, of the gynecologist Prof. Alfred Dührssen, at the age of 72, is announced. While serving as assistant of Gusserow, at the Charité-Frauenklinik, in Berlin, he devised Dührssen's tampon for the prevention of fatal hemorrhage in childbirth. He became even more widely known in connection with his "vaginal cesarean section," which he first described nearly forty years ago. He introduced a number of other operations or improvements in well known methods. He worked indefatigably for reforms in obstetric practice.

ITALY

(From Our Regular Correspondent)

Oct. 1, 1933.

Surgical Treatment of Duodenal Ulcer

Professor Cavina recently gave the Accademia medico-fisica of Florence a demonstration of the Judd operation for the treatment of duodenal ulcer. The operation consists in excision of the ulcer, together with a partial pylorectomy, which comprises the resection of the two anterior thirds of the sphincter. This operation eliminates two of the chief symptoms of duodenal ulcer; namely, stasis and gastric hyperacidity. The same purposes can be attained also by gastrojejunostomy, which, however, leaves the ulcer in situ and exposes the patient to the risk of jejunal ulcer. The Judd operation is indicated in young persons, provided the duodenum is sufficiently mobile and not too much distorted, and in recent ulcers of the stomach wall, anterior to the bulb. Such conditions of operability are found in about half the cases.

The results are fairly satisfactory. According to statistics of the Mayo Clinic (1930), in 464 interventions only two deaths occurred, and of 369 patients who could be followed up the results were satisfactory in 90 per cent.

In recent months the speaker operated on seven patients with duodenal ulcer, and in every case the immediate results were excellent. The only untoward symptom was a grave pulmonary complication. The postoperative period of observation has not been long, but the results thus far appear favorable. Postoperative examination of the gastric contents tends to show an effective reduction of acidity. Radiologically the evacuation of the opaque medium in the cases examined took place in normal time—in one case with precipitation.

Increase of Foreign Students in the Universities

According to a report of the Istituto centrale di statistica, the number of foreign students enrolled in the universities of Italy was 487 in 1913-1914, 700 in 1921-1922, and 2,287 in 1932-1933. There has been an increase of 470 per cent in about twenty years. The foreign students constitute 4.5 per cent of the entire student population of the Italian universities and the institutions of higher learning. Sixty-four per cent of the foreign students are enrolled in the faculties of medicine and surgery. The universities of Bologna (460) and of Rome (329) have the largest representation of foreign students. With

regard to nationality, the largest groups are from Russia, Poland and the Baltic states (540), Rumania (392), and the United States (365).

Biologic Study of Woman

In the Istituto biotipologico of Genoa, Prof. Nicola Pende and his associates are pursuing research on the somatic and functional differences between the Italian woman and the fundamental ethnic stocks from which she is sprung. The first results secured concern the Ligurian woman. In Liguria, at least five chief racial types can be distinguished. The differentiation is often difficult, owing to the numerous crossings that have occurred, but it is not impossible, says Pende, in 68 per cent of the cases. The five racial variants are the Mediterranean, the Alpine, the Nordic, the East Baltic and the Dinaric (or Adriatic) races. The Mediterranean, the Alpine and the Adriatic races are dark; the other two are blond. Studying the five races from the point of view of fecundity, these workers found that the Italian woman of Mediterranean race (who is dark) occupies the first position and in 85 per cent of the cases presented hyperfecundity or normal fecundity. On the contrary, among the women of the blond races they found a high percentage of infecundity or low grade fecundity, amounting to not less than 68 per cent among the women of Nordic type. The middle position characterized the women of Alpine type, who present 45 per cent of hypo-ovarian subjects, with little or no fecundity, and 55 per cent with normal ovarian activity and normal fecundity. Also from the point of view of organic and functional robustness the woman of Mediterranean race occupies the first position, showing herself to be sthenic in 66 per cent of the cases and asthenic in 34 per cent. On the contrary, the women of blond type are robust and sthenic in about 35 per cent of the subjects.

In the Mediterranean type of women and in the blond Nordic type the longilineal body form prevails, while in the Alpine and East Baltic types there is a preponderance of the brachymorphic form.

In the women of the Mediterranean type and of the blond Nordic type, the nervous system shows a predominance of the sympathetic system; in the women of Alpine and East Baltic types there is, however, a dominance of the vagus and of the parasympathetic system.

BUDAPEST

(From Our Regular Correspondent)

Oct. 23, 1933.

Was Semmelweis a Hungarian?

The Swabians, who were Saxons, at one time contested the Hungarian origin of Semmelweis, stating that he was of German nationality. In a recent address before a medical society, Dr. Alois Konrad, a pupil of Semmelweis, presented arguments that left no doubt as to the Hungarian origin of Semmelweis. He stated that formerly the Viennese Germans forced Semmelweis on Hungarians but now acknowledge that he was a Hungarian. When the theories of Semmelweis were new and he was being attacked, he was called "the fool of Vienna." He obtained a lectureship only after his second application, and even then for a long time an attempt was made to suppress his name. Today, educated foreigners recognize his Hungarian nationality. The Austrian obstetrician Chrobak regarded him as the greatest son of Hungary. Wyder, professor of obstetrics at Zurich, Switzerland, wrote a treatise about "the great son of Hungary." Johannes Grosse of Dresden in his obstetric monograph, published in 1898, devoted a special chapter to proving that Semmelweis was of Hungarian origin. Many other references of a similar nature could be enumerated.

Semmelweis was born in Buda, Hungary, and his brothers fought in the war against Austria in 1848-1849. With the exception of three university years, Semmelweis was educated in Hungary. That a major part of his medical studies were made in Vienna can be attributed to the fact that at that time the great trio Rokitansky, Skoda and Hebra were teaching there. Semmelweis returned to Hungary in 1850 and applied for a hospital position. The original letter is in the archives of the city of Budapest under the number 17551, 1850. He wrote "Though up to now I have exercised my medical knowledge in Vienna, henceforth I wish to settle as a practitioner in my fatherland, and especially in my birthplace." Eleven years later, in a letter addressed to the Hungarian Scientific Academy, he wrote: "Fate brought on events in such a way that when I made the discovery in 1847 I was beyond the boundaries of my fatherland, serving as a physician to the Vienna obstetric clinic."

He wore the Magyar national dress at a time when not every Magyar dared to do so. He was one of the first to lecture in the Hungarian language when most professors used German. The fact that Semmelweis wrote his great treatise in German originated, he said, in his desire to write in the language of those who did not accept his doctrines and on whom he wanted to make an impression. However, the essential details of his doctrines were published in the Hungarian language in 1858 in the *Orvosi hetilap* under the title "The Prophylaxis of Puerperal Fever" and again in 1860 under the title "Difference of Opinions Between Myself and English Physicians in Regard to the Origin of Puerperal Fever." His book appeared in German in the year 1861. Thus nothing remains but his German sounding name and the circumstance that one of his ancestors lived in Germany. But it is certain that his parents lived and were born in Hungary. Now, after all this, if any one considers that Semmelweis was not a Hungarian it would be just as erroneous as to say that Aristotle was not a Greek because he was born in Macedonia and learned the Greek language later on or that Richard I was not an English monarch because he was a Plantagenet and therefore of French origin.

Semmelweis was a Hungarian, and posterity will ever know him as such.

Free Choice of Physician Under Health Insurance

The Hungarian Medical Association recently took the position that the principle of free choice of physician must be adopted by every sickness insurance society. This decision is apt to transform the whole of medical practice with the insurance corporations. This question was the subject of endless discussion in medical circles. Those who are employed at present by corporations with a more or less fixed salary are not anxious to change a sure income for a position which is to be created at a later date. Those without a fixed salary or position take the stand that medical practice is a free profession in which everybody should prosper according to his ability and knowledge. Thus the profession has split into two groups. Both agree that those already employed cannot, by any means, get in a worse position. The transition will be difficult but not impossible. It is an advantage to the Hungarian medical profession that there are already examples from which they may adopt what is good. Both parties agree to adopt the French system, whereby members of the sickness societies contribute, to a certain extent, to the costs of the drugs used. From the German system they wish to copy the ambulatory system; that is to say, the erection of several district dispensaries in large cities, where physicians work in turn for three hours.

There are also many problems that concern memberships in the sickness societies. Owing to critical financial circumstances in Hungary, the ministry of public welfare has liberalized the income limit and that will make it possible for three fourths of the population to have access to social insurance. The elastic income limit will give rise to frequent abuses and will

remove many better class families from the sphere of private practice.

Another ticklish question is how to produce the increased funds needed for the salaries of the increased number of physicians. In view of the fact that the membership fee cannot be increased under present circumstances, the only solution is that the state must contribute more to the expense of the insurance societies. After lengthy consideration the government acceded to this solution of the problem, with the reservation that its contribution be merely temporary and last only until present circumstances improve, when both employers and employees can pay higher insurance premiums.

Marriages

OSCAR NOEL MORISON, Cedar Grove, N. J., to Mrs. Ruth Bryant Reid of Southern Pines, N. C., in Roanoke, Va., October 12.

ZEKE CANDLER GAMMEL, Old Hickory, Tenn., to Miss Marion Houston Tanksley of Birmingham, Ala., November 4.

ELMER A. LARSEN, Centerville, Iowa, to Miss Fayre Mae Smith of Des Moines at Clinton, October 21.

ARTHUR WESLEY KISTNER, Elkhart, Ind., to Miss Virginia Droz at Washington, Iowa, September 2.

FRANCIS DRING WETHERILL LUKENS to Miss Emma Martyn George, both of Philadelphia, in October.

SAMUEL MOIR RICKMAN, Louisville, Ky., to Miss Rosemary Leila Honiker of Decatur, September 3.

EDWARD JOHN KLOESS, Belleville, Ill., to Mrs. Beulah Scott Mason of Leadwood, Mo., October 9.

PAUL E. SWANSON, Peoria, Ill., to Miss Elizabeth Christensen of Virginia, Minn., September 2.

WILLIAM A. SANNES, Soldiers Grove, Wis., to Miss Eda Nederloe of Mount Sterling, July 10.

GERSHOM JOSEPH THOMPSON, Rochester, Minn., to Miss Maxine Tews at Iowa City, July 16.

PAUL T. O'KEEFE, Waterloo, Iowa, to Miss Marian Brouillard of Charles City, October 11.

HENRY HAMAN HAMILTON to Miss Frances Allen, both of Cedar Rapids, Iowa, in October.

ANDREW LE ROY KARABIN, Chicago, to Miss Clare Hazinski of South Bend, Ind., October 31.

CHARLES C. RUSSELL to Miss Winnie Greeson, both of Chatsworth, Ga., September 24.

DAVID PAUL LIEBERMAN to Miss Selma Kaufman, both of Elizabeth, N. J., November 12.

LEONARD AVERY HALLOCK to Mrs. Lettys Curtis Jackson, both of New York, October 27.

HAROLD V. HOLTER, Kansas City, Kan., to Miss Martha Louise Lowder, November 3.

ELMER E. KOTTKE to Miss Doris Mae Coover, both of Des Moines, Iowa, September 29.

WILLIAM GARLAND HEEKS to Miss Lucia Bell Page, both of New York, September 9.

SOLOMON SCHWAGER to Miss Evelyn Johnson, both of Pittsfield, Mass., November 10.

ROLAND J. SCHACHT, Racine, Wis., to Miss Helen L. Allman of Marshfield, June 29.

ROCCO JOHN FAZIO to Miss Concetta Anna Vacca, both of Chicago, October 21.

HERBERT E. KOEPKE to Miss Martha Porter, both of Cadiz, Ohio, September 12.

WILFRED J. RIVERS, Eastover, S. C., to Miss Mildred Tillinghast, August 1.

FREDERICK E. VEST to Miss Ruth Larimer, both of Topeka, Kan., October 10.

GEORGE W. LACY to Miss Camilla Fort, both of Fort Worth, Texas, recently.

SIMON LOEB SHICK, Richmond Hill, N. Y., to Miss Hilda Lind, July 31.

DAVID H. LANDO to Miss Janet Cohn, both of Milwaukee, June 28.

Deaths

Alexander Quackenboss, Boston; Harvard University Medical School, Boston, 1892; member of the Massachusetts Medical Society; at one time professor of ophthalmology at the Dartmouth Medical School, Hanover, N. H., and Williams professor of ophthalmology at his alma mater; served during the World War; formerly on the staffs of the Massachusetts Eye and Ear Infirmary, the Massachusetts General Hospital and the Infants' Hospital; aged 67; died, October 27, of metastatic carcinoma.

Samuel Brown Hays, Lakeland, Ky.; Kentucky School of Medicine, Louisville, 1902; member of the Kentucky State Medical Association and the American Psychiatric Association; at one time assistant to the chair of eye, ear, nose and throat, University of Louisville School of Medicine, Louisville; served during the World War; formerly on the staff of the Central State Hospital; aged 54; died, November 14, in Cloverport, of heart disease.

Eldridge Eakin Wolff ⊕ Cambridge, Md.; University of Maryland School of Medicine, Baltimore, 1899; past president of the Medical and Chirurgical Faculty of Maryland and the Dorchester County Medical Society; member of the state board of medical examiners; formerly health officer of Cambridge; on the staff of the Cambridge Hospital; aged 59; died, November 7, of chronic nephritis and valvular heart disease.

Holton C. Curl ⊕ Medical Director, Captain, U. S. Navy, New York; Drake University Medical Department, Des Moines, 1893; University of California Medical Department, 1897; fellow of the American College of Surgeons; entered the navy in 1898; served during the World War; formerly assistant to chief of the Bureau of Medicine and Surgery; aged 61; died, November 9, of angina pectoris.

Lee Collins Redmon ⊕ Lexington, Ky.; University of Louisville School of Medicine, 1907; fellow of the American College of Surgeons; past president and secretary of the Fayette County Medical Society; formerly medical director of the public schools in Lexington; on the staffs of St. Joseph's Hospital and the Good Samaritan Hospital; aged 48; died, October 27, of carcinoma.

George Francis Kelleher ⊕ Postville, Iowa; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1911; past president of the Allamakee County Medical Society; aged 46; died, October 23, of injuries received when the automobile in which he was driving struck a monument.

Patrick Henry Hourigan ⊕ Buffalo; Niagara University Medical Department, Buffalo, 1893; associate in hygiene and public health, University of Buffalo School of Medicine; aged 63; on the staff of the Millard Fillmore Hospital, where he died, November 7, of lobar pneumonia and agranulocytosis.

George Childs Macdonald, San Francisco; L.R.C.P., Edinburgh, Scotland, 1883; M.R.C.S., England, 1884; Université libre de Bruxelles Faculté de médecine, 1886; F.R.C.S., Edinburgh, Scotland, 1887; formerly on the staff of St. Mary's Hospital; aged 72; died, October 13, of heart disease.

John Bynum, Winston-Salem, N. C.; University of the City of New York Medical Department, New York, 1892; member of the county board of health; member of the Medical Society of the State of North Carolina; aged 73; died, November 2, in the Duke Hospital, Durham, of thrombosis.

George Punshon Bawden, Moose Jaw, Sask., Canada; Manitoba Medical College, Winnipeg, 1906; fellow of the American College of Surgeons; aged 60; on the staffs of the Providence Hospital and the Moose Jaw General Hospital, where he died, August 9, of coronary thrombosis.

William Alvis Guthrie, Franklin, Ky.; University of Tennessee Medical Department, Nashville, 1889; member of the Kentucky State Medical Association; medical superintendent and owner of the Southern Kentucky Sanatorium; aged 69; died, November 9, of cerebral hemorrhage.

Herman Jeffery Lichte, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1930; aged 25; formerly an intern at the Hospital of the University of Pennsylvania, where he died, September 12, of mastoiditis and pneumococcic meningitis.

Maurice Oberlin Putt, Oberlin, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1873; member of the Medical Society of the State of Pennsylvania; aged 81; died, September 29, in the Harrisburg (Pa.) Hospital, of arteritis obliterans.

John Raymond Nagle, Worland, Wyo.; University of Nebraska College of Medicine, Omaha, 1927; member of the Wyoming State Medical Society; county coroner; formerly member of the state board of health; aged 37; died, October 31, of pneumonia.

Daniel Brewer, Fairbury, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1876; Hahnemann Medical College and Hospital, Chicago, 1877; member of the Illinois State Medical Society; aged 90; died, November 1, as the result of a fall.

Leon Watson, Broadway, N. C.; North Carolina Medical College, Davidson, 1900; member of the Medical Society of the State of North Carolina; bank president; aged 55; died, November 2, in the Lee County Hospital, Sanford, of cardiorenal disease.

Patrick Joseph Paul Hamill, Jersey City, N. J.; Columbia University College of Physicians and Surgeons, New York, 1904; member of the Medical Society of New Jersey; on the staff of St. Francis Hospital; aged 52; died, November 2, of heart disease.

Samuel Robert Herring, Warren, Ark.; Tulane University of Louisiana Medical Department, New Orleans, 1900; member of the Arkansas Medical Society; proprietor of a hospital bearing his name; aged 62; died, October 28, of cirrhosis of the liver.

John Chivers Stafford Lappeus ⊕ Binghamton, N. Y.; University of Buffalo School of Medicine, 1904; fellow of the American College of Physicians; on the staff of the Binghamton City Hospital; aged 55; died, November 17, of acute nephritis.

Gustav A. Kletzsch, Milwaukee; Bellevue Hospital Medical College, New York, 1882; formerly professor of gynecology, Wisconsin College of Physicians and Surgeons; aged 76; died, November 9, in the Milwaukee Hospital, of pernicious anemia.

James Henry Eddy, Lakewood, Ill.; College of Physicians and Surgeons of Chicago, 1889; formerly a member of the school board; aged 70; died, November 9, in the Shelby County Memorial Hospital, Shelbyville, of injuries received in a fall.

Gaston Rene De Cotret, Montreal, Que., Canada; School of Medicine and Surgery of Montreal, 1915; formerly professor of obstetrics, McGill University Faculty of Medicine; on the staff of the Hopital Ste. Justine; aged 42; died, October 10.

James Lawrence Halsey, Islip, N. Y.; Bellevue Hospital Medical College, New York, 1888; member of the Medical Society of the State of New York; past president of the Suffolk County Medical Society; aged 73; died, November 15.

Henry A. Dedman ⊕ Canby, Ore.; University of Oregon Medical School, Portland, 1896; mayor of Canby; formerly bank president and member of the school board; aged 68; died, October 28, of embolism and arteriosclerosis.

William A. Knowlton, Cleveland; Charity Hospital Medical College, Cleveland, 1867; Civil War veteran; aged 94; died, November 10, in the Fair Oaks Villa Sanatorium, Cuyahoga Falls, Ohio, as the result of a fractured hip.

John Albert Burke, New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1878; aged 79; died, October 25, at his summer home in Pittsfield, Mass., of chronic myocarditis.

Eugene Robert McMurray ⊕ Bartow, Fla.; Rush Medical College, Chicago, 1897; formerly secretary of the Polk County Medical Society; on the staff of the Bartow General Hospital; aged 59; died, October 25, of endocarditis.

Romulus Adams Foster, Washington, D. C.; Columbian University Medical Department, Washington, 1874; member of the Medical Society of the District of Columbia; aged 81; died, October 26, of cerebral embolism.

Frank Martin Patton ⊕ Elkhart, Ind.; Rush Medical College, Chicago, 1922; on the staff of the Elkhart General Hospital; aged 37; died, October 27, in the Washington Boulevard Hospital, Chicago, of acute leukemia.

John Wellington Felty ⊕ Hartford, Conn.; Jefferson Medical College of Philadelphia, 1884; fellow of the American College of Surgeons; surgeon to the Charter Oak Private Hospital; aged 73; died, October 15.

George Powers Quinn, Erlanger, Ky.; Chicago College of Medicine and Surgery, 1917; served during the World War; aged 42; died, October 18, in St. Elizabeth's Hospital, Covington, of pleurisy with effusion.

Vernon Llewellyn Oler ⊕ Calumet, Mich.; University of Maryland School of Medicine, Baltimore, 1911; served during the World War; aged 47; died suddenly, November 16, at his home in Laurium, of heart disease.

Phineas Hillhouse Adams ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1909; on the staff of the Bellevue Hospital; aged 50; died, November 9, of cerebral arteriosclerosis.

Charles Herman Armstrong, Preston, Iowa; Bennett College of Eclectic Medicine and Surgery, Chicago, 1907; member of the Iowa State Medical Society; aged 53; died, November 11, of carcinoma of the throat.

Claude A. Adams, Durham, N. C.; College of Physicians and Surgeons, Baltimore, 1892; member of the Medical Society of the State of North Carolina; aged 62; died, November 8, of carcinoma of the pancreas.

Edward Engleton Moore, Wilmette, Ill.; Dartmouth Medical School, Hanover, N. H., 1884; aged 77; died, November 1, in the Kankakee (Ill.) State Hospital, of senile dementia and chronic myocarditis.

Alphonso Holland Carvill, Somerville, Mass.; Harvard University Medical School, Boston, 1869; for ten years member of the school committee; aged 90; died, November 3, of cerebral arteriosclerosis.

Jacob Jacobson ⊕ New York; Universität Bern Medizinische Fakultät, Bern, Switzerland, 1927; aged 39; died, November 17, in the Mount Sinai Hospital, of agranulocytosis and bronchopneumonia.

Thomas Tyler Wheeler, Trussville, Ala.; Chattanooga (Tenn.) Medical College, 1900; aged 57; died, October 13, in the Norwood Hospital, Birmingham, of a gangrenous gallbladder with stones.

Mildred Jenks McKee ⊕ Sturgis, Ky.; Johns Hopkins University School of Medicine, Baltimore, 1916; formerly a medical missionary in China; aged 46; died, October 29, of brain tumor.

William Worman Livingood, Robesonia, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1899; aged 57; died, October 25, in the Reading (Pa.) Hospital, of pneumonia.

William Smith Philips, Belle Center, Ohio; Columbus Medical College, 1882; formerly councilman, mayor and member of the board of education; aged 80; died, October 26, of pneumonia.

John A. Jackson, Ronceverte, W. Va.; University of Louisville (Ky.) School of Medicine, 1887; formerly mayor of Ronceverte; aged 72; died suddenly, October 26, of heart disease.

Franklin J. Oshay, Ladd, Ill.; Rush Medical College, Chicago, 1889; aged 71; died, September 26, in the East Moline State Hospital, Moline, of chronic nephritis and myocarditis.

Benjamin W. S. Wiseman, Culver, Ind.; College of Physicians and Surgeons, Keokuk, Iowa, 1880; for eight years postmaster; aged 81; died, November 4, of cerebral hemorrhage.

Edgar McCormick, Jackson Center, Ohio; Medical College of Ohio, Cincinnati, 1888; member of the Ohio State Medical Association; aged 67; died, November 5, of heart disease.

Edward Lee Batts ⊕ San Angelo, Texas; University of Texas School of Medicine, Galveston, 1897; on the staff of St. John's Hospital; aged 61; died suddenly, November 1.

Charles Edward Hall, Atlanta, Ga.; College of Physicians and Surgeons, Medical Department of Columbia College, 1895; aged 68; died, October 22, of carcinoma of the prostate.

Clement O. Sullivan, Monee, Ill.; Chicago College of Medicine and Surgery, 1912; aged 47; died, October 26, of an overdose of morphine, presumably self administered.

John Hardeman Heard, Macon, Ga.; Jefferson Medical College of Philadelphia, 1881; member of the county board of education; aged 78; died, November 3, of endocarditis.

Cyril P. Kirley, Lowville, N. Y.; Kentucky School of Medicine, Louisville, 1875; member of the Medical Society of the State of New York; aged 80; died, November 3.

Edgar Dwight Hill ⊕ Plymouth, Mass.; Medical School of Maine, Portland, 1877; on the staff of the Jordan Hospital; aged 78; died, November 4, of heart disease.

Samuel James Marks ⊕ Bordentown, N. J.; New York Homeopathic Medical College and Flower Hospital, New York, 1914; aged 43; died, October 28.

Patrick Joseph Clark, Secaucus, N. J.; Atlantic Medical College, Baltimore, 1909; aged 49; died, July 11, in the Hudson County Hospital, of heart disease.

John Emmans De Mund, Montclair, N. J.; Albany (N. Y.) Medical College, 1890; aged 67; died, November 11, of arteriosclerosis and hypertension.

William Anthony Dotson, Freeburn Pike, Ky.; Kentucky University Medical Department, Louisville, 1906; aged 55; was shot and killed, October 29.

Andrew Francis Hoff, Casper, Wyo.; Drake University Medical Department, Des Moines, Iowa, 1898; aged 74; died, November 3, of acute dysentery.

John Sinclair Leonhardt, Los Angeles; College of Physicians and Surgeons, Keokuk, 1879; aged 74; died, September 6, of carcinoma of the bladder.

Leo Horatio Hall, Edes Falls, Maine; Long Island College Hospital, Brooklyn, 1885; aged 71; died, August 5, of gangrene of the right foot.

John W. Martin, Coldwater, Mich.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1877; aged 80; died, November 18, of senility.

Charles Berrien Hall, Chicago; Hahnemann Medical College and Hospital, Chicago, 1886; aged 73; died, November 14, of chronic myocarditis.

John A. MacGregor ⊕ Kansas City, Kan.; Trinity Medical College, Toronto, Ont., Canada, 1890; aged 70; died, October 2, of encephalitis.

Louis Martial Pelletier, Rigaud, Que., Canada; School of Medicine and Surgery of Montreal, 1889; aged 69; died suddenly, September 16.

William Henry Bryant, Louisville, Ky.; Leonard Medical School, Raleigh, N. C., 1905; aged 53; died, September 4, of coronary thrombosis.

Charles Sherman McCarty, Muscatine, Iowa; State University of Iowa College of Medicine, Iowa City, 1888; aged 69; died, October 3.

Jessie B. Brown, McGregor, Texas; Tulane University of Louisiana Medical Department, New Orleans, 1896; aged 60; died, November 2.

John Thomas Hamilton, Kansas City, Mo.; Missouri Medical College, St. Louis, 1882; aged 77; died, November 6, of heart disease.

Thomas Jefferson Carr, Corryton, Tenn.; Tennessee Medical College, Knoxville, 1893; also a minister; aged 73; died, October 24.

Homer Corbett Edwards, Piedmont, Calif.; University of Michigan Medical School, Ann Arbor, 1892; aged 64; died, August 25.

Marmora De Voe Moody, Seattle; Homeopathic Hospital College, Cleveland, 1877; aged 85; died, October 14, of lobar pneumonia.

Arlington R. Havens, Blackwell, Okla.; Barnes Medical College, St. Louis, 1901; aged 64; died, in October, of septicemia.

Herschel Halleck Stoner, West Los Angeles, Calif.; St. Joseph (Mo.) Medical College, 1885; aged 72; died, September 25.

Ulysses Grant Mason, Chicago; Meharry Medical College, Nashville, Tenn., 1895; aged 60; died, October 5, of coronary occlusion.

John H. G. Reed, Epes, Ala.; Louisville (Ky.) Medical College, 1890; aged 65; died, September 16, of carcinoma of the liver.

Fred Albert Starbuck, Abilene, Texas; Eclectic Medical University, Kansas City, Mo., 1902; aged 72; died, September 25.

John Timothy Connelly, Bayonne, N. J.; Harvey Medical College, Chicago, 1898; police surgeon; aged 59; died, October 31.

Thomas Henry Bier, Brantford, Ont., Canada; University of Toronto Faculty of Medicine, 1896; aged 59; died, August 19.

John Charles Calhoun, Pittsburgh; Cleveland Medical College, 1897; aged 61; died, October 30, of uremia and nephritis.

Theodore S. Jennings, Louisville, Ky.; Louisville (Ky.) Medical College, 1887; aged 83; died, November 12, of nephritis.

Charles Sumner Kellogg, Glendale, Calif.; Eclectic Medical Institute, Cincinnati, 1881; aged 74; died, September 19.

George Douglas Pratt, Soquel, Calif.; California Medical College, San Francisco, 1898; aged 57; died, September 15.

Allan Gibson, Guelph, Ont., Canada; University of Toronto Faculty of Medicine, 1895; aged 65; died, September 27.

Benjamin Sides Pennington, Altadena, Calif.; Keokuk (Iowa) Medical College, 1891; aged 76; died, October 2.

Harry Lee Randal, Philadelphia; Jefferson Medical College of Philadelphia, 1901; aged 66; died, September 25.

Bureau of Investigation

ANOTHER HAY FEVER TREATMENT

The "New Filtration Method" of Edwin S. Leach, M.D.

For the past six or seven years the Bureau of Investigation has been receiving requests from physicians and others regarding what is called the "New Filtration Method" in the treatment of hay fever and allied conditions, said to have been originated by a Dr. Edwin S. Leach of Junction City, Kan. As specimens of the inquiries received, the following are more or less typical:

"I enclose a pamphlet gotten out by an osteopath in Billings. Will you kindly inform me what this Filtration Method for the treatment of hay fever is?"—*(From a Montana physician.)*

"Can you give me any information on the treatment of diseases of the air passages called the 'Filtration Method' originated by Dr. E. S. Leach? Osteopaths are advertising this system of treatment as a positive cure for colds, hay fever, asthma, etc."—*(From an Idaho physician.)*

"May I have information relative to the Leach Clinics, operated by Dr. Edwin S. Leach of Junction City, Kansas? The *Medical Herald and Physio-Therapist* of Kansas City, Mo., published an article relative to the Filtration Method for relief and cure of hay fever and asthmatic patients. The cure is guaranteed."—*(From a Kansas physician.)*

"Will you please inform me whether or not Dr. E. S. Leach at Junction City, Kan., is a member in good standing of the A. M. A.? What is his medical status?"—*(From a Wisconsin physician.)*

"Being unable to find any information in the literature relative to the Clinics [Leach] named in the enclosed brochures, will you kindly advise me of the status of the work as outlined therein?"—*(From a California physician.)*

These are fairly typical of the inquiries that come in regarding the subject matter of this article. Dr. Edwin S. Leach of Junction City, Kan., according to the records of the American Medical Association, was born in 1867 and holds a diploma from the Ensworth Medical College, St. Joseph, Mo., issued in 1894. He was licensed in Missouri in the same year and in Kansas in 1916. He is reported to have taken the California examination in 1924, but failed. According to the medical directories, Dr. Leach was at Marshall, Mo., from 1900 until 1909. Then his name is not found in either the old Polk's Directories or in the American Medical Directory until 1914, when it appears in Junction City, Kan., where it has been from that time on.

Dr. Leach is not a member of his local medical society nor, of course, of the American Medical Association. Incidentally, Dr. Leach has given as his excuse for not being a member of the American Medical Association the fact that Geary County, in which Junction City is located, has no county medical society. This is not correct. Geary County has a medical society, although it is true that it did not come into existence as an entity until August, 1932. However, before that society was created, out of the eleven physicians (including Dr. Leach) who practice in Junction City, Kan., eight of them held membership in the Kansas State Medical Society and therefore, of course, in the American Medical Association. Obviously, there is another explanation for the fact that Dr. Leach is not a member of his state or the national organization.

In 1926 Dr. Leach was putting out a sixteen-page advertising booklet entitled "Facts, New and Old, Concerning Hay Fever and Rose Cold, The New Method of Treatment Originated and Perfected by Edwin S. Leach, M.D., Rhinologist of Junction City, Kan." The booklet was addressed to the public and was an elaborate puff for Dr. Leach's treatment, which was described as "the first and only real cure." The hay fever public was urged to lose no time in coming to Junction City for treatment, as "owing to the great demand" for the treatment, "we will soon book up to the limit of our present facilities." With a letter sent out by Dr. Leach to a layman in 1926, there went a printed "Report Blank" asking certain questions regarding the proposed patient, and on the reverse side of the blank the recipient was asked to fill in the names and addresses of "at least five of your friends afflicted as you are, that we may send to them our liberal offer until we have booked our full quota."

On Oct. 8, 1928, Dr. Leach submitted to THE JOURNAL an article entitled "Hay Fever, Its Cause, Pathology and Treat-

ment," and suggested to the editor that he was sure that the article would "prove a most interesting subject to your readers" because the "Filtration Method has awakened tremendous interest on the part of hundreds of nose and throat men of the country." The same article that Dr. Leach submitted to THE JOURNAL for publication had already appeared in the July issue of the *Western Medical Review*, although this was not the basic reason for rejecting the manuscript. The same article appeared in the October, 1928, issue of the *Western Medical Times* and again in the May, 1929, issue of the *Medical Herald and Physio-Therapist*. What is essentially the same article rewritten appears in the *Eye, Ear, Nose and Throat Monthly* for June, 1933, under the title "The Basic Etiology of Hay Fever." These two articles seem to be the only contributions that Dr. Leach has made to medical literature in his nearly forty years of practice.

What is the Leach "Filtration Method?" Apparently it is essentially a slogan used to persuade medical men that it is necessary for them to take a "course" of instruction from Dr. Leach in order successfully to treat hay fever with a proprietary medicine that Dr. Leach has devised, sold under the name of "Rhino-Form." ("Two ounce, double strength, $2.00.") The medical profession for some years has been voluminously circularized by Dr. Leach, urging them to attend his "Clinics." These "clinics" are given not only at Junction City, but apparently in various parts of the country from the middle west to the Pacific Coast. In the "come-on" material sent out by Dr. Leach, he urges physicians, as a preliminary to taking the course, to purchase his stenographic notes, which are said to be a replica of his "educational lectures." These are sold for $2.50. The course itself seems to have varied in price from $100 to $50. The thesis developed by Dr. Leach is, first, that the nose is a filter which, when normal, stops and holds all dust, pollen, etc., that may be drawn in through the breath. When, however, the nasal tissues are in a "wasted condition," the dust and pollen are "allowed to filter through into the blood stream due to this defect in the filter." Let Dr. Leach describe it:

> "In the upper third of the nose in all hay fever there exists a hyperabundance of the glandular tissue, which is the absorbing tissue of the body. 'Filtration Method' of treatment destroys this excess of the glandular tissue and in the healing process it is replaced by more of the connective tissue which tightens these membranes to the extent they become impervious to this pollen dust as in the normal nose. A scar tissue? No, we do not carry the effort that far."

What Dr. Leach calls his "Stenographic Notes" of his "Educational Lectures" is a forty-two page printed pamphlet entitled "Nasal and Air Passage Pathology." In the preface to his lectures Dr. Leach declares that hay fever is "just another very distressing complication of catarrhal rhinitis." In his first lecture he states that the subject of hay fever "has been shrouded with more mystery than perhaps almost any subject we could have selected," but that he feels that he is "able to draw aside the veil that has shrouded this affliction with mystery and reveal it as one of the most simple pathological conditions with which we have to deal."

Of the efficacy of his "Filtration Method of Treatment" Dr. Leach is quite convinced. He declares that "where the patient has been afflicted for ten years or less and we receive their complete cooperation, we can expect to get 100 per cent cures and most of them in the first season." With hay fever cases of more than ten years' standing, even with the complete cooperation of the patient, one will only get about 75 per cent of cures in either the first or the second season. However, many of them "receive a cure during the third or fourth year." The "treatment" which constitutes what Dr. Leach calls his Filtration Method is essentially that of first swabbing the nasal tissues with a 2 per cent solution of cocaine and then the application of "Rhino-Form Single Strength." The nose and throat are then sprayed with an oil spray. After from one to three days' treatment of this kind, "Rhino-Form Double Strength" is used. If this brings about a "profuse bloody discharge," this is said to indicate a mere "sloughing away of all superfluous tissue and is in no way indicating harm being done to the membranes." In fact, Dr. Leach says that "blood streaked discharge is a most favorable indication."

In cases of bronchitis and asthma, Dr. Leach has what he calls a "local iodine treatment of the air passages," in which a solution of iodine, tincture of belladonna, tincture of benzoin in alcohol is vaporized and the vapor inhaled by the patient. Should the physician be called when the patient is in the midst of a violent asthmatic attack, Dr. Leach recommends the use of "Asthmolysin," a proprietary product that the exploiters claim contains "suprarenal and pituitary hormones." In other words, it is essentially epinephrine, although Dr. Leach declares that "the effect of one subcutaneous injection [of Asthmolysin] will last longer than any of the common remedies, such as adrenalin, morphine and atropin." In those cases of asthma that are complicated by sleeplessness, Dr. Leach recommends the prescribing of "Painodyne," a proprietary which THE JOURNAL has characterized as belonging to "irrational shotgun mixtures marketed with unwarranted claims."

The preparation used to destroy the excessive glandular tissue is "Rhino-Form." Just what Rhino-Form is, apparently no one but Dr. Leach knows. In some of his mimeographed material he has vaguely and ambiguously described it as a "silver solution obtained by treating silver nitrate with an alkaline proteid." Because of inquiries received, Dr. Leach was recently written to by the A. M. A. Chemical Laboratory, inquiring whether Rhino-Form was or was not a secret formula, and asking, if it were not, whether Dr. Leach cared to furnish an accurate definition of its composition, stating the amount of silver, ionic and non-ionic, as well as the amount of silver protein. This rather simple request, which could have been answered in a short paragraph, first brought a three-and-a-half page (single spaced) typewritten letter from Dr. Leach, in which the Leach Clinics and the reasons for them were gone into in great minutiæ. But no information was furnished on the subject of the Laboratory's inquiry!

Dr. Leach did state that no effort had been made to commercialize Rhino-Form—this in spite of the fact that for some years both printed and mimeographed advertising material on Rhino-Form has been distributed to physicians. Nor, stated Dr. Leach, had "a word or line" gone out "from the Clinics or from the Rhino-Form Company urging the profession to purchase Rhino-Form." Dr. Leach then stated that he had found "high percentage of silver nitrate solutions" the most effective preparations for overcoming the "hyperabundance of glandular tissue," which, he holds, is the cause of absorptions of poisons which produce hay fever. He stated, however, that applying to the nasal mucosa silver nitrate solutions up to a strength of sixty grains to the ounce, the patients complained that the reaction was intolerable and worse than the disease—which seems reasonable—and there was always the possibility of sloughing and deep scarification. Therefore, continued Dr. Leach:

> "Our next hope lay in the possibility of treating these very high percentage of Silver Nitrate solutions with the idea of materially modifying the powerful Nitrate Radical without destroying the potency of the silver, the result we named Rhino-Form a Silver Nitrate high percentage solution, not a formulae [*sic!*] or combination of other agents, but modified to the degree it will not slough, unduly scarify, or injure normal healthy membranes, yet of a germicidal power equal to the untreated solutions, producing no reaction that could be complained of. Rhino-Form is what we call a fool-proof solution that will do no harm no difference how carelessly it may be used."

It is evident that this statement gives no more information of value on the composition of Rhino-Form than have the ambiguous pronouncements in the doctor's other advertising material. Dr. Leach was again written to and asked whether his failure to furnish the information asked for was an inadvertent omission or whether it is a fact that the product is secret in composition. This brought the reply from Dr. Leach that "in my former letters my statement given of the contents of Rhino-Form has been highly satisfactory to all men who have profited greatly through attendance at our Clinics." No further light was thrown on the composition of Rhino-Form, although Dr. Leach did extend his remarks in this letter to the extent of two full pages of single-spaced typewriting, emphasizing his sincerity of purpose and the unselfish contributions of his time to further the interests of the medical profession.

Rhino-Form is not put out under Dr. Leach's name, but by the Rhino-Form Company of Junction City, Kan. It appears, however, that the Rhino-Form Company is merely a trade style used by Dr. E. S. Leach in the exploitation of his preparation. The A. M. A. Chemical Laboratory recently analyzed Rhino-Form (Double Strength) and the chemists' report follows:

LABORATORY REPORT

"One original specimen of 'Double Strength Rhino-Form' (Rhino-Form Company, Junction City, Kan.) was submitted to the A. M. A. Chemical Laboratory for analysis at the request of the Bureau of Investigation. The container was an ordinary 2 oz. bottle that carried a label on which was the following:

A modified form of silver nitrate, robbing nitrate of some of its drastic action without destroying its potency.
Do not shake. Use of the clear solution.

"The bottle contained 59 cc. (2 fluidounces) of an odorless liquid-solid system out of which the solid would settle if the bottle was allowed to stand a short time. The solid was brown; the liquid without the solid, colorless; and the suspension partook of the brownish hue of the solid.

"Qualitative tests on the liquid indicated the presence of large quantities of silver and nitrate ions. The solid when treated with an excess of ammonia gave a yellow solution that gradually faded. Quantitative determinations were as follows:

Specific gravity at 25 C.	1.062	
Silver calculated to silver nitrate	7.1	per cent*

* The silver was determined by titrating a nitric acid solution of the original. It is questionable whether the insignificant amount of silver in the solid portion was measured by this reaction.

"From the foregoing, it is concluded that Double Strength Rhino-Form consists essentially of a "neutral" solution of silver nitrate of approximately 7 per cent strength and a small amount of a silver-bearing solid, possibly a silver protein compound and possibly some silver oxide. According to the label, the solid is not for therapeutic purposes."

Correspondence

NUTRITIONAL STATUS OF THE MINNEAPOLIS SCHOOL CHILD

To the Editor:—The question of malnutrition, undernourishment, rickets and other evidences of food deficiency has been under constant observation in Minneapolis, with reference to the child of school age, for nearly two years.

In response to a questionnaire from the Surgeon General of the U. S. Public Health Service, a report was made in March, 1932, following a survey made by sixty-four school nurses and eleven school physicians. The tabulation of this survey showed that the children attending the public schools of Minneapolis showed no increase in nutritional disturbances resulting from insufficient diet, as compared with the previous two calendar years. A second survey was made in the school system through the agency of the school nurses in June, 1932. The result of this survey was similar to the one made in the early part of the year.

Reports from schools where public relief families predominate tend to show that such families showed no material tendency to malnutrition. The children from such families actually presented a better appearance, as evidenced by laundry and clothing repair, than was customary.

The tabulation of the individual examinations of children, 32,000, conducted by the school physicians in the schools, during the school year September, 1932, to June, 1933, shows that conditions indicating undernourishment had actually lessened as compared with the previous two school years. There was an actual reduction in the lack of general development and muscular tone, fewer defective tonsils and adenoids, less errors referable to the nervous system, a reduction of 50 per cent in poor posture, less indications of anemia and a lessened tendency to chorea.

A review of the report of the Oral Hygiene Department for the same school year shows 36 per cent of the mouths examined needing no dental repair or treatment as compared with 31 per cent the previous year and 27 per cent the year preceding.

All these figures indicate that Minneapolis children are not suffering from the effect of the economic change in home life. Pediatric wards of the Minneapolis General Hospital are unusually free from cases of malnutrition in young children. Rickets is almost unknown. There are and always have been cases of undernourishment in the child life of Minneapolis. The point at issue, however, is that this condition has not grown worse during the past three years of economic stress.

F. E. HARRINGTON, M.D., Minneapolis.
Commissioner of Health; Director of School Hygiene.

THE WHITE BLOOD CELL COUNT

To the Editor:—I was much interested in the editorial "The White Blood Cell Count" in THE JOURNAL, October 14. It interested me very much because, as many as thirty-two years ago, when I was a house officer at the Boston Children's Hospital, I made white counts (which were then coming into vogue) on every child who came into the hospital. I did this over a period of a few months. These children had pneumonia, appendicitis, congenital dislocation of the hips, bow legs, harelips, cleft palates, and various other acute and developmental defects. Apart from the acute conditions, the white count varied from 6,000 and 7,000 to 30,000, and at that time, the increased leukocytosis was interpreted as due to absorption from digestion, because many of the counts were taken within an hour or two after a meal, so, it was felt at that time, and still is, that there is a wide variation, in normal children, of the white cell count, and that in cases other than acute conditions, it should not be taken too seriously. On the other hand, there was at the hospital at that time as chief surgeon a man who many times came to a decision to operate, in cases of acute appendicitis, when the white count went up 200.

Therefore, I was interested in your editorial calling attention to the definite variation of the number of leukocytes under normal conditions, and without this knowledge, of course, no satisfactory judgment can be formed.

JAMES WARREN SEVER, M.D., Boston.

"THE STORY OF CHILDBIRTH"

To the Editor:—The review of "The Story of Childbirth" in THE JOURNAL, November 4, says: "The usual indefensible statement is made that the United States is the worst place in the civilized world for a woman to have a baby, and—unfairly—the statistics of various countries, which, all serious students of the situation decide, are not comparable, are repeated again in an attempt to prove it."

I challenge the writer of the review to find any such statement in the text coming from the author. There is, to be sure, a quotation from one of the most distinguished and accomplished obstetricians in the country that closely parallels the statement credited to me. What I did say (p. 218) was:

The indictment has been made and often repeated in the medical and lay press that the maternal mortality in the United States is the highest in the civilized world; and, moreover, that the rate has not been lowered since 1915 and not appreciably lowered for a much longer period of time. The White House Conference is not willing to go on record as confirming this statement, but it does submit undeniable evidence that the maternal and infant mortality in the United States ranks high among the civilized nations of the world.

This, I believe, is a fair statement of fact, based on the most reliable statistics available in Washington at the time of writing. I am in full accord with the author of the review in resenting the sensational writings in the lay and medical press when such writings overstress the facts. Our maternal mortality is relatively too high and we need the cooperation of the public in reducing it at least to the level of those nations, such as Sweden, that are making the best showing, and I have

faith that in another decade or two this will be accomplished. I fully appreciate that there are mighty forces at work for the betterment of obstetric practice in America. Improved educational facilities in our medical schools and training schools for nurses, the establishing of more and better maternity centers, maternity hospitals, prenatal and postpartum clinics and the educational facilities afforded child-bearing women are all factors that will inevitably result in the betterment of obstetric practice in America. When this comes about, the United States will rank with the nations that are making the best showing in maternal mortality.

PALMER FINDLEY, M.D., Omaha.

MENINGOCOCCIC MENINGITIS IN EARLY INFANCY

To the Editor:—In THE JOURNAL, September 2, page 795, Dr. J. M. Ravid of New York refers to cases of meningitis in the new-born and in early infancy. We are aware of these case reports and of others in the literature on meningitis in very young infants. In our article in THE JOURNAL, July 22, page 272, we reported the occurrence of a case of meningococcic septicemia with meningitis in an infant, aged 22 days, with a diagnosis correctly made within twenty-four hours of onset, immediate, adequate serum therapy given by the most desired routes, and early recovery. Later on in the article we mentioned that our patient was "the youngest patient in whom the condition has been reported." Possibly this statement is ambiguous, but since our case report referred to early diagnosis, serum treatment and rapid recovery, we feel that our patient is the youngest on record. Although others are reported, we have been unable either in English or in foreign literature to find reference to any patient younger than 22 days, with complete recovery. All other cases except one have been fatal. In the latter a hydrocephalus developed, and we have been unable to find any reference to the future course of this case. Hydrocephalus developing, naturally, cannot be termed rapid recovery. We might mention also that morphologic, cultural, agglutinating and typing tests proved the cerebrospinal fluid organism to be a meningococcus of types 1 or 3.

ALAN BROWN, M.D. (TOR.),
NELLES SILVERTHORNE, M.B. (TOR.),
Toronto.

EMERGENCY COMMITTEE IN AID OF DISPLACED FOREIGN PHYSICIANS

To the Editor:—An unfortunate aspect of the present situation in Germany is that it has brought misfortune to many of her scholars. These include the physicians and surgeons in professional and in academic positions, who are being forced to leave the country and seem doomed to forfeit their carefully prepared careers and opportunity for carrying on research. To save their services for the common good, organizations in several countries of Europe are working to secure for them positions outside of Germany. A similar organization has been formed in this country, which will work in conjunction with those abroad. This committee is called the Emergency Committee in Aid of Displaced Foreign Physicians. Its form of organization and its methods are similar to those of the Emergency Committee in Aid of Displaced German Scholars, of which Dr. Livingston Farrand, president of Cornell University, is chairman. Its purpose is to facilitate the placement of a limited number of specially qualified foreign medical men in noncompetitive positions, so that they may continue to carry on their scientific work.

In view of the plight in which so many American physicians find themselves at present because of the economic depression, the committee will not encourage immigration into the United States of displaced foreign physicians for the purpose of engaging in medical practice. The committee will keep in mind the necessity of avoiding recommendations that might result in injury to American physicians or introduce competition with them. In instances in which a stipend may be provided through the agency of the committee, it will be stipulated that the position is for full time service. The committee will also maintain a central registry of refugee foreign physicians, including a record of their qualifications, from which institutions in this and other countries may obtain information concerning persons qualified for positions that cannot be filled locally.

The officers of the committee are Dr. Bernard Sachs, chairman, Dr. Edwin Beer, treasurer, and Dr. George Baehr, secretary. The executive committee includes Dr. Alexis Carrel, Dr. S. S. Goldwater, Dr. John A. Hartwell, Dr. Foster Kennedy, Dr. Emanuel Libman, Dr. William H. Park, Dr. David Riesman, Dr. J. Bentley Squier, Dr. I. S. Wechsler and Dr. Hugh H. Young.

All communications should be addressed to the Emergency Committee in Aid of Displaced Foreign Physicians, Room 1704, 2 West Forty-Fifth Street, New York City.

GEORGE BAEHR, M.D., Secretary.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

RUPTURE OF AMNIOTIC SAC DURING LABOR—DRY LABOR

To the Editor:—I am somewhat at sea regarding certain obstetric dictums related both by professors and in textbooks. One is the subject of dry labor. Until recently, most obstetricians taught that the premature rupture of the amniotic sac was unfortunate, as it caused a longer labor with increased maternal and fetal morbidity and mortality. Now many excellent obstetricians assert that the amniotic sac is not a dilator, and some of them rupture the sac before, at the advent of or during labor, in order to shorten labor. I have always felt that the spontaneous rupture of the bag of waters frequently but not always presaged a malposition of the head or a noncephalic presentation. I should appreciate a clarification on this point. Kindly omit name

M.D., New Jersey.

ANSWER.—As mentioned in the query, there has been a distinct reversal of opinion concerning the value of the bag of waters during labor. Until recent years nearly all obstetricians maintained that it was meddlesome and dangerous to rupture the membranes before the cervix was completely dilated, unless there was an excellent indication for carrying out this procedure. Today, even in such a conservative clinic as the Johns Hopkins, labor is not infrequently begun by rupturing the membranes. Of course, this procedure should not become a routine one in all or in most cases of labor. In some clinics on the continent, however, nearly all patients have the bag of waters ruptured artificially early in labor, but this type of intervention is to be strongly condemned. When induction of labor is necessary at, near or beyond term there is no more certain and safe method of doing this than by rupturing the membranes. However, this is true only if the fetal head is engaged and the physician is scrupulously careful about asepsis and antisepsis. It is the unanimous opinion of all obstetricians who have had considerable experience with this procedure that labor is almost invariably shorter than in the cases in which labor is not started by rupturing the membranes or even when the membranes rupture spontaneously. There is apparently no harm to the mother or the baby if proper precautions are taken. However, unless there is an urgent reason, the procedure should not be carried out if the presenting part is floating, because of the risk of prolapse of the cord. It is possible for an unengaged head to change its position after artificial or spontaneous rupture of the bag of waters; but if the head is engaged, and certainly if it is fixed in the pelvis, malposition of the head is a rarity.

Thus far the absence of the bag of waters during labor has not seemed to affect the new-born child. One of the chief arguments formerly presented for keeping the membranes intact

was that an intact bag of waters acted as the dilating wedge of the cervix and thereby spared the fetal head from excessive pressure against the cervical ring during each contraction. This argument, as far as we can tell, is not valid. However, there is a possibility that absence of the membranes during labor may result in small hemorrhages in the baby's brain which are too small to produce symptoms and signs at birth or shortly afterward. It is possible that such tiny hemorrhages may produce disturbances later on, but thus far this has not been demonstrated. Another argument in favor of retaining intact membranes as long as possible was that the fetal head was not as smooth a dilator as the membranes and therefore it had a tendency to injure the cervix. However, postpartum examinations of the cervix fail to bear out this contention. The attitude at present, therefore, is that if an indication for inducing labor arises, and the fetal head is engaged, there is no apparent harm in rupturing the membranes for this purpose.

BERCOVITZ PUPILLARY TEST FOR PREGNANCY

To the Editor:—I have recently read an article on the so-called Bercovitz pupillary test for pregnancy. The method described consisted in mixing 5 drops of the mother's blood with 1 drop of 10 per cent sodium citrate and dropping this in the eye of the mother. A positive reaction was supposed to consist of a change in the size of the pupil, while the other pupil remained normal in size. This article also stated that the test was almost 100 per cent efficient in diagnosing pregnancy, and that a negative reaction gave a true indication of the absence of pregnancy in approximately 75 per cent of the cases. Is this test considered reliable? Since the technic is so simple, it seems that if the results should prove accurate it would be a more widely known and used test. Please omit name and address.

M.D., Illinois.

ANSWER.—The Bercovitz pupillary reaction to detect early pregnancy is not reliable enough to be dependable in doubtful cases of pregnancy. In a series of 107 cases of proved pregnancy reported by King (*Am. J. Obst. & Gynec.* **25**:99 [Jan.] 1933), a positive result was obtained in 68 per cent, a doubtful response in 10 per cent and a negative result in 21 per cent. In 108 tests on nonpregnant individuals there were 4 false positive responses and 11 doubtful reactions. In a series of 90 cases reported by Gordon and Emmer (*Am. J. Obst. & Gynec.* **21**:723 [May] 1931) there were 64 per cent positive reactions, 14 per cent doubtful and 21 per cent definitely negative reactions. All the nonpregnant women in this series gave negative reactions.

One of the disadvantages of this test is that, although the test is simple, there is difficulty in reading the result. A great deal depends on the interpretation of the observer.

It must be remembered that this test was not offered by Bercovitz as an absolute means of differential diagnosis between pregnancy and other uterine conditions. The information afforded by a positive reaction is confirmatory evidence along with that obtained by physical examination. In Bercovitz's first series he reported that the reaction was present in 80 per cent of the pregnancies studies in one group and in 62 per cent of the pregnancies in a smaller group.

TOXIC THYROID WITH LOW BASAL METABOLIC RATE

To the Editor:—Is it possible for an individual to be suffering from a toxic thyroid and still have a normal basal metabolism? A woman patient, aged 32, married, with two living children, gave birth to a seven month, slightly macerated still-born infant about one year ago. During her last pregnancy she had a blood pressure of 210 systolic, 120 diastolic. Albumin was three plus. She weighed 160 pounds (72.6 Kg.). She complained of headache, spots before the eyes, and pain in the epigastrium. One month after delivery the pressure dropped to 130 systolic, 90 diastolic, and the urine showed only a trace of albumin. Since then she has had a gradual loss of weight to 112 pounds (51 Kg.). Menstruation has stopped. Her appetite is poor. She is nervous. The pulse rate ranges from 100 to 120. She vomits after meals. She has a choking sensation. She is troubled with hot flashes and perspires easily. Excitement causes blotches to appear on the chest, neck and face. There is a moderate exophthalmic expression of the eyes. The basal metabolism is plus 8. The white blood count is 9,000. There is no enlargement of the neck, no thyroid nodules are palpable, and no thyroid enlargement is visible on roentgen examination. Although there is a history of tuberculosis in the family, tuberculosis has been ruled out by roentgen examination. Other organic diseases have also been ruled out. The Wassermann reaction is negative. Rest in bed in a sanatorium, with high caloric feeding and iodine medication, gave no result. I would appreciate your suggestions. Kindly omit name.

M.D., Indiana.

ANSWER.—It is possible, although unusual, for a patient with a toxic thyroid to have a low or even a subnormal basal metabolic rate. This may be observed in hyperthyroidism under partial iodine control, in frank exophthalmic goiter which has "burned itself out," and in long standing nodular goiter.

Clinically but little difficulty is encountered in the interpretation of wide variations from accepted standards of the metabolic rate; however, the interpretation of lesser variations from the accepted normal, as frequently seen in chronic cardiovascular disease of thyroid origin, may present considerable difficulty and such variations must be interpreted individually. The normal for the individual may vary considerably from the average normal, and the variation in an individual case from a high to a low average normal, as may occasionally be induced by the administration of iodine in chronic low-grade hyperthyroidism, may amount to as much as 25 per cent. This should particularly be taken into consideration in interpreting the metabolic rate of cardiac patients in whom the disease is conceivably due to thyroid intoxication. The cardiovascular phenomena frequently dominate the clinical manifestations of the latter group, whereas the usual clinical evidence of hyperthyroidism may be much less obvious. A drop of from 10 to 20 per cent in metabolic rate in a patient with heart disease while under iodine therapy may be taken as supporting but not demonstrating a diagnosis of thyrocardiac disease. Hypertension is frequently observed in chronic hyperthyroidism. Such patients present the usual manifestations associated with hypertension of whatever variety, and occasionally it may be difficult if not impossible to demonstrate a thyroid relationship.

In the instance cited, many of the conditions found suggest a chronic, low-grade hyperthyroidism. For the reasons stated, a single metabolic rate determination of + 8 per cent should not be construed to exclude chronic, low-grade hyperthyroidism. While an unequivocal diagnosis of chronic hyperthyroidism cannot be made, this seems to be the most probable diagnosis. The fact that the thyroid is neither enlarged nor nodular does not preclude such a diagnosis. If such a diagnosis can be substantiated, thyroidectomy under iodine control in the hands of an expert surgeon trained in thyroid work would be proper treatment.

EPILEPSY

To the Editor:—While a student in an engineering college fifteen years ago, a man, who was then 21 years old, was taken with epileptic seizures. He had been in perfect health previously. The seizures came every few days and would come any time, night or day. He was treated by rest and by bromides. He took 90 grains (6 Gm.) of sodium bromide daily without avail. He was studied by some of the best neurologists in the country, who could not find the cause. Syphilis was definitely excluded. He went through the usual round of tonsillectomy, circumcision, and so on, without help. After eight months he was operated on in Cincinnati by a former president of the American Medical Association, Dr. C. A. L. Reed, who stated that the attacks were due to autointoxication from ptosis of the colon. This operation did no good. Later he was treated in Chicago by a physician who injected the patient's blood into rabbits and then injected the rabbit blood serum into the patient. These treatments helped, as the periods between attacks became six weeks and the attacks came only at night, usually in groups of five or six. No medicines were taken by mouth after the operation. After two years without medicine the patient was again put on bromides, 60 grains (4 Gm.) daily, and has had no attacks since. He returned to college, was graduated, and at present has a good position as an engineer. His work is quite strenuous because of long hours and the responsibility of his work. After he had been without attacks for two years he married and has three children, all apparently healthy. The amount of bromide was gradually cut down and at present he is taking 10 grains (0.65 Gm.) of bromide a day and 1 grain (0.065 Gm.) of phenobarbital a day. While he has had no major seizures for twelve years he does have, particularly when tired, occasional transient ringing of the ears, lasting a few seconds. At such times his head may feel "thick" and he gets relief by going to bed for a few hours. This ringing in the ears was always the premonitory sign of his major attacks. Please advise me as to the following: 1. Would it be safe to discontinue sedatives entirely? 2. Is the use of 10 grains of bromide and 1 or 1.5 grains of phenobarbital daily likely to do harm to the brain, kidneys or other organs? To date they have not affected him. 3. Is it likely that his children will be epileptic? There is no other case of this disease in his family. 4. For the past few years the patient has used alcoholic drinks moderately. Is this likely to bring back the attacks? Please omit name.

M.D., Michigan.

ANSWER.—1. In view of the fact that the patient is apparently still having minor seizures, it seems unwise to discontinue the remedies altogether. The bromide probably can be gradually eliminated without harm, but the phenobarbital should be continued. It is well to remember that phenobarbital should never be discontinued suddenly in cases of epilepsy, as there is a liability to the occurrence of a series of seizures.

2. Not in this case.

3. No definite answer can be given. In the absence of a family predisposition, and especially if the mother's family history is without epilepsy, it is quite likely that there will be no epilepsy in the children.

4. The occurrence of epileptic seizures is a positive contraindication to the use of alcohol.

PREVENTION AND TREATMENT OF RENAL CALCULI

To the Editor:—A well developed though rather obese man, aged 50, is subject to frequent attacks of renal colic and gout. The patient may for weeks have the daily passage of numerous small calculi in the urine. An analysis shows that these calculi are composed of practically pure uric acid. His blood chemistry is normal except for a very high uric acid content, just under 7 mg. to 100 cc. Roentgen examination reveals that the right kidney is normal but that there is a bifid kidney pelvis and bifurcation of the ureter and considerable enlargement of the left kidney. There is, however, no evidence of damage. Treatment during attacks of gout has included sodium salicylate, colchicine salicylate, neocinchophen, intravenous injection of an ampule containing salicylate sodium iodide and colchicine; also cold wet dressings of saturated solution of magnesium sulphate locally, forced fluids, a purine-free diet, and sedatives. Treatment during attacks of renal colic included the use of some urinary antiseptic, forced fluids, sedatives and hypnotics, and the alkaloids of belladonna. Recently the patient has been taking piperazine with distilled water, and a low purine and high vitamin diet. I should appreciate your advising me as to the following points: 1. Whether some forms of drinking water are harmful and predispose to the formation of urinary calculi and attacks of gout. In this district we have what is commonly known as "Flatbush" water. 2. Whether it is advisable to subject my patient to cystoscopy and irrigation of his left kidney pelvis every few months to prevent accumulation of urinary stones. 3. As to the effect of diet. 4. As to proper medication for the prevention and treatment of the gouty attacks and the formation of calculi. Please omit name.

M.D., New York.

ANSWER.—1. While there are some urologists who maintain that distilled water should be used instead of ordinary tap water, in actual practice there is little harm that can be attributed to drinking the latter.

2. Cystoscopy and pelvic irrigation as a preventive measure may appear on the surface to be a reasonable form of treatment, but in practice it is both painful and unproductive of the described results. Small stones may pass eventually of their own accord, while large ones cannot pass spontaneously or with mechanical aid aside from surgery.

3 and 4. Diet has not been proved to have much effect in cases of renal calculus. The restriction of purine rich food and alcoholics is the generally accepted procedure in cases of gout. For the relief of the acute attack of gout, one of the colchicum preparations and external heat should be tried. If no relief is obtained, one of the narcotics will be necessary.

DIFFERENTIAL DIAGNOSIS OF CHRONIC SINUSITIS

To the Editor:—I should like to have a diagnosis and suggestions for treatment for the following condition: Nine years ago the patient had an infection of the right sinus and two years later the left side became infected (the antrums). He became quite deaf, with continuous tinnitus. Three years ago he had windows cut in both sides, which are still open. They still drain, but the thick pus has cleared. There is still considerable clear mucous discharge. Every six days he has a slight chill with a rise in temperature of from one-fifth to two-fifths degree, with a marked increase of the head noise and an increase of the mucous discharge. There is a dry stuffy feeling of the nasal mucous membrane the first twenty-four hours, which soon fades into the increased discharge. The noise gradually subsides until the sixth day until almost lost, and then the chill and fever appear again. He has had several cultures made but never has had a definite diagnosis or the germ isolated. All manner of treatment has been tried, but to no avail. The deafness has improved since the windows were made. The general health is normal. The past history is negative except for the usual contagious diseases.

M.D., California.

ANSWER.—At first blush, it would appear that all the symptoms described were due to the chronic sinus condition. Nevertheless, closer consideration of a history in which one of the most outspoken features is a regularly recurrent chill accompanied by a slight rise in temperature makes one feel that this would be an unusual and rare effect of chronic sinusitis. Certainly every attempt should be made to rule out all other causes of chronic fever. Chief among these would be malaria, especially if the patient lives in a malarial climate; undulant fever; tularemia; Hodgkin's disease, in which the fever known as the Pel-Ebstein type occasionally occurs, and also such conditions as perinephric and subdiaphragmatic abscesses, as well as pyelitis and pyelonephritis. In the absence of any of these, one could assume that the symptoms complained of were due to the disease in the sinuses. Careful roentgen examinations should be made. Iodized oil, particularly, could be instilled into the antrums, with subsequent roentgen examinations, to determine the condition of the sinus mucosa. In the event that roentgenographic evidence supports the clinical condition found in the nose, and the diagnosis of chronic suppurative sinusitis is made, surgery of a more radical type than the patient has already had should be considered. As to the ear symptoms, any marked impairment of hearing, accompanied by head noises in an older man, is highly suggestive of auditory nerve involvement. The increased difficulty in hearing that accompanies the flare up of the nasal condition is probably a superimposed tubal catarrh. If the nose improves, the latter condition should improve also. In any case, careful tests to determine the nature of the deafness should be undertaken, if only to get an accurate prognosis.

RECURRENT HERPES SIMPLEX

To the Editor:—A farmer, aged 26, has had fissures in the anterior third of his tongue for the past eighteen or twenty months. Vesicles appear over the sides and the anterior surface of the tongue, followed by these fissures. The fissures are quite painful, especially when the patient eats. He drinks plenty of water. His tongue is not dry or rough. The blood, urine and gastric analyses are normal. There are no rough edges on the teeth. His dentist checked up on his teeth. He has spent approximately four months with each of two eye, ear, nose and throat specialists; he has been to five or six other doctors and has been treated by me for over three months, all to no avail. I have alkalinized him, had him scrub his tongue with soap and toothbrush, follow with a boric acid and alcohol mouth wash, and apply tincture of myrrh every other day. Although his tongue seems almost to clear up, these new fissures break out again. Please omit name and address.

M.D., Wisconsin.

ANSWER.—Did the dental examination include roentgenograms of the teeth? If not, these should be made to detect any focal infection. The use of an alkaline wash to cleanse the mouth is all right, but this must be done gently, with no scrubbing. The patient should use magnesia magma morning and evening as a tooth wash, leaving it in the mouth after the evening cleansing. When the ulcers or fissures appear, each one should be touched with a 5 per cent solution of chromic acid or a crystal of silver nitrate. The diet should be bland, and the excessive use of fruit should be avoided. The old combination of equal parts of magnesia magma and compound mixture of rhubarb and soda internally, just enough to cause mild loosening of the bowels, may be useful. The diagnosis is recurrent herpes simplex.

SALT INTAKE AND GASTRIC ACIDITY

To the Editor:—1. In cases of restricted sodium chloride intake, the normal osmotic pressure is preserved by decreased renal excretion of salt. Is there also a decrease of gastric acidity? 2. Would a diet containing 2 Gm. of table salt daily increase the gastric secretion of hydrochloric acid? 3. Would large doses of sodium bicarbonate decrease the chloride ion in the blood and decrease the gastric secretion of hydrochloric acid as a defense measure to maintain the normal acid-base equilibrium and combat an impending or actual alkalosis? 4. I understand that experimental removal of the normal alkaline intestinal secretions causes an increased gastric acidity probably to combat an acidosis from loss of alkali. I have read that large doses of alkali stimulate increased secretion of hydrochloric acid, but the reverse seems more reasonable on the basis of maintaining the normal acid-base equilibrium. Has this question been settled by experiments or clinical data? Please omit name.

M.D., Chicago.

ANSWER.—1 and 2. No. These answers are based chiefly on experimental observations. Eimer (*Deutsche med. Wchnschr.* **56**:997 [June 13] 1930) found that the acidity curve showed an upper trend even if a salt-free diet was continued for months. The human organism adjusts itself, he states, to the decreased chloride supply by limiting sodium chloride secretion in the urine so that neither tissues nor fluids show a deficiency.

3. Yes, but the doses must be large. The dosage of sodium bicarbonate must exceed 3 Gm. per kilogram in dogs (Boyd, T. E.: *Am. J. Physiol.* **71**:455 [Jan.] 1925).

4. This question is one difficult to answer. Experimentally, a hypersecretion is noted lasting several days following the period of heavy alkali administration, but large doses reduce gastric secretion both in quantity and in acidity. Boyd's work indicated that calcium carbonate increased the flow of gastric juice. Clinical impressions of stimulation of gastric secretion by alkalis are not verified at this time.

ACETYLENE POISONING OR HYDROGEN ARSENIDE (ARSINE)

To the Editor:—Three patients have been admitted to the hospital within the past month with symptoms of acute catarrhal jaundice, enlarged liver, malaise, anorexia and a severe jaundice, one having an icteric index of as high as 130. Each of the patients has a history of having worked with acetylene torches in tanks or closed rooms. Is there any relationship between the inhalation of this gas or the products of this gas and the jaundice? If the gas is responsible, how does it produce the effect? What is the pathology? Should this type of case be treated as any other catarrhal jaundice or is there a specific?

B. W. PATTON, M.D., Baltimore.

ANSWER.—Acetylene, as such, is of a low order of toxicity. Impurities and products of incomplete combustion are responsible for the abnormal states usually attributed to acetylene.

Both hydrogen phosphide (phosphine) and hydrogen arsenide (arsine) may exist in acetylene.

The disease state described in the query is fairly characteristic of poisoning by hydrogen arsenide. In the typical case may be found vomiting, edema of the face and particularly about the eyes, coryza, lassitude, pain in the region of the liver, albuminuria, hemoglobinuria and jaundice.

Assuming that these three patients, in fact, are suffering from occupational diseases, arsenic poisoning is probable. This may be proved by the establishment of arsenic in quantities above normal in the urine, blood or hair of the patients or in the acetylene gases (preferably of the same lot of gas) when burned in small enclosed spaces. When proved, obviously, the treatment indicated is that appropriate for arsenic poisoning and its sequelae.

TREATMENT OF LATE HEREDITARY SYPHILIS

To the Editor:—A patient of mine, at the age of 20, was taken ill, and his sickness was diagnosed as heredosyphilis. His blood test at that time gave a 2+ Wassermann reaction, and for this he was under treatment for two years, during which period twenty-four injections of neoarsphenamine and about 400 of mercury compounds were made. He felt fairly well for the next two or three years, when again he was taken ill and his blood examined and found again with a plus reaction. At that time he came to me and I have administered to him in four years forty-eight injections of neoarsphenamine and 200 of bismuth compounds. During the treatment he gained weight and was feeling better just from the first injections. Two weeks ago he came to me and told me that for about one year after the treatment he was feeling fine but that for the past two months he has been losing weight, appetite and sleep. I took a specimen of blood and sent it for examination, which yielded a 2+ reaction. Another examination gave the same answer. Will you kindly tell me whether sulpharsphenamine or sodium thiosulphate injections should do better in cases like this, or what do you advise for treatment? Kindly omit name.

M.D., New York.

ANSWER.—Cases of late inherited syphilis in which the Wassermann reaction is persistently positive require a spinal fluid examination. Such symptoms as loss of weight, appetite and sleep may be due to a variety of causes. The treatment that this patient has had has been more than adequate. Sulpharsphenamine presents no advantages over neoarsphenamine except that it can be used intramuscularly. Sodium thiosulphate is not a spirocheticidal drug. Although a few observers have reported reversal of the Wassermann reaction following its use, its value in the treatment of syphilis is questionable. It should be reserved primarily for cases intolerant to the arsenicals and for the treatment of postarsphenamine accidents. This patient probably would do fairly well on milder treatment, iodides by mouth, mercury by inunction, with occasional courses of bismuth arsphenamine sulphonate. If the spinal fluid is positive, intravenous injections of acetarsone might be tried.

MENTAL DEPRESSION AFTER COITUS AND BILATERAL VASECTOMY

To the Editor:—A man, aged 40, married, has had severe mental depression and insomnia, often lasting for a week or more, following each act of coitus or nocturnal emission, no matter how infrequent those may be. Abstinence for several months has had no beneficial effect on him. He had masturbated considerably when a boy and has had premature ejaculations and nocturnal emissions for many years. He has never had a venereal disease. The only abnormality found on examination was a congested posterior urethra and verumontanum. Those have not improved greatly under local applications of silver nitrate solutions (10 to 20 per cent) or even fulguration. Sedatives had only a slight temporary influence. His prostatic and seminal fluids are normal. It is quite evident that loss of seminal fluid has a marked depressant effect on this patient. The man is highly intelligent and desires a bilateral vasectomy, assuming the consequences of a sterilization. Would such a procedure be of any benefit to the patient? What might be the remote effects of a double vasectomy on his (1) sexual power; (2) mentality? Kindly omit name.

M.D., Ohio.

ANSWER.—This is not an unusual case. The congestion in the prostatic urethra is certainly sufficient to account for all the symptoms. Abstinence or infrequent coitus can only make matters worse. The same may be said about applications of strong silver nitrate or fulguration to the congested prostatic urethra. The patient should not indulge in the practice of withdrawal but in regular normal sexual intercourse whenever sexually excited. The nonindulgence in coitus when sexually excited will only increase the local congestion. The local treatment should consist in gentle prostatic massage and instillations of weak silver nitrate solutions (from 1:3,000 to 1:500) into the prostatic urethra with the Bangs sound syringe every five days.

There is no remote or other effect of double vasectomy either on the sexual function or on the mentality except a possible psychic effect.

UNUSUAL MENSTRUAL INTERVAL

To the Editor:—I have a patient, aged 19 years, quite healthy, with no obvious abnormality either by history or physical examination, save that her menstrual periods have always occurred regularly every nineteen days and last five days. The patient is anxious because of this frequency and the attendant inconvenience. Is it advisable to attempt to lengthen the cycle and what means would you suggest? Kindly omit name.

M.D., Ohio.

ANSWER.—While the increased frequency of menstruation is a great inconvenience, it does not indicate any pathologic condition. In the human female, with possible rare exceptions, menstruation always depends on preceding ovulation, and in the present state of knowledge no way is known of bringing about regular prolongations of the intervals between ovulations and therefore between menstrual periods. It not infrequently happens that, after a temporary amenorrhea produced by radium or roentgen rays, the menses that follow the period of amenorrhea more nearly approach the usual twenty-eight day cycle. However, since this patient is only 19 years old, such treatment, even if it were more certain in its action than it is, would still be out of the question. It may be that after a pregnancy or later in life the menstrual intervals will change and this is about the only encouragement that can be given the patient at the present time.

DERMATITIS FROM CARBON PAPER

To the Editor:—A man, aged 53, weighing 235 pounds (106 Kg.), a railroad switchman, has handled carbon paper for the last three years in making out his records, and during this time he has had considerable eczema on his hands. This began on the right thumb and index finger. When I first saw him, June 11, 1933, the eczema was of a callus-like nature and would crack, itch and annoy him. The condition still exists and is involving both hands in spots. He has never had eczema on any other part of his body. The eczema is evidently due to carbon paper. The patient also has a cousin who has eczema on her hands whenever she uses carbon paper. I should like to know whether any other cases of this nautre have been reported and also the chemical ingredient of the paper that produces it.

M.D., New York.

ANSWER.—Typewriter carbon paper, hectograph types of ink, and indelible pencil leads are fairly common sources of dermatitis. The callus formation mentioned in the query suggests mechanical rather than chemical irritation. Aniline dyes enter into the three products specified. Methyl violet is a widely used one. Skin sensitization is a possibility, and secondary entry of fungi often aggravates and perpetuates the initial chemical dermatitis.

GONORRHEA IN A SIX YEAR OLD BOY

To the Editor:—Please outline for me the treatment of uncomplicated gonorrheal urethritis in a healthy 6 year old boy. At present there is a copious discharge and slight burning on urination; edema of the prepuce and redness about the meatus have practically subsided under hygienic treatment. What is the prognosis for cure? Please omit name.

M.D., New York.

ANSWER.—Gonorrheal urethritis in a boy of 6 years should clear up without any local treatment, as boys of this age generally are not subjected to the influences of either alcohol or sexual excitement, the two things surest to prevent proper curative response. It tends under such circumstances to be a self-limited disease and young boys generally recover promptly without serious complications if no traumatic treatments are given. Aside from local heat for edema, precautions regarding conjunctival infection and ordinary hygiene, such a child needs little if any treatment and the prognosis for complete cure is little less than 100 per cent.

SENILE ANGIOMA

To the Editor:—I have a woman patient, aged between 45 and 48 years, who has a tremendous amount of small, red, elevated spots all over her body. It seems that they multiply gradually. She wants to get rid of some, especially those on her arms, chest and upper part of her back. These spots are undoubtedly small hemangiomas. Would the application of the electric needle be of use in this case? Are there any ill after effects following the use of the needle? Please omit name.

M.D., Connecticut.

ANSWER.—The correspondent is right in diagnosis and suggested treatment. The senile angioma is an innocent growth that seldom becomes large enough to be disfiguring. Electrolysis is good treatment for the growths and will do no harm, either immediately or afterward. The needle should be pushed through the base of the growth and a moderate current applied for a few seconds; then a second application parallel to the first should be made until the whole base has been treated. Cross punctures are said to favor scarring.

TOXIC EFFECTS OF PLANT JUICES IN EYE

To the Editor:—Recently I was consulted by a patient who had been gathering wild flowers a few hours before I saw her. As she broke one of the stalks, some of the sap of the flower spurted into her eye. She experienced severe burning in the eye at once. When I examined her a few hours later there was a mild ciliary inflammation, the epithelium of the cornea was faintly stippled and the pupil was unaltered in size and responded to normal stimuli. There was no disturbance of the interior of the eye. The next day the stippling of the epithelium was coarser but of less extent. Recovery has been uneventful. The patient was not able to tell me what kind of flower she had gathered. What substance would be encountered in the juice of the plant like this which would produce such severe pain and mild destruction of the epithelium? What would you offer for treatment other than sedatives, local anesthesia and protection of the eyeball? Please omit name.

M.D., Indiana.

ANSWER.—Since it is not known from what plant the sap emanated, it of course not possible to say what specific toxin was contained in the juice. However, the toxic effect of many plant juices on the eye is well known, varying from mild conjunctival irritation to intense conjunctival edema, superficial or deep keratitis, and even iritis. For a discussion of this, the reader is referred to the article on Injuries to the Eye, by Wagenmann, on page 1594 of the Graefe-Saemisch handbook, second edition, 1913, volume 9. The treatment described in the inquiry is eminently proper.

NO GLANDS FOR FEMALE CHARM

To the Editor:—I have run into an interesting question in connection with some efforts to adjust a problem in domestic psychology. The layman reads a good deal of stuff nowadays and gets ahead of us folks sometimes. I wonder if any of your staff would have any suggestion to offer. All of my study has failed to stir up a clue. The problem is that of a husband who complains that his wife lacks femininity; that she is too wooden and matter-of-fact; and he wants to know if there is some glandular treatment possible that will give her that feminine charm that made Cleopatra and Ninon de l'Enclos famous. This is to be distinguished from sexual ardor, which this patient does not lack. The problem seems to be rather the lack of that quality which is the opposite of he-manness, and of that quality which to my mind approaches the charm of children. Of course, we classify it as a constitutional property, whatever that means. But, do we have any means of increasing it when it is deficient? Please omit name.

M.D., Nebraska.

ANSWER.—There is no glandular extract which could replace the inherited or acquired qualities of feminine charm. A grown woman who has not learned in girlhood to imitate some older woman with this secret or these manners is not likely to go to school to acquire them later in life. Still, all things are possible to some women.

BLEEDING AFTER DEATH

To the Editor:—In a court case the question has come up as to how long a man will bleed after death. In this instance the man was shot in the head with a shotgun, the incident occurring during the summer months; the man was then thrown from an automobile, and, when found, there was a small pool of blood under the man. The question arose as to how long the man could have been riding, dead but still bleeding.

M.D., Georgia

ANSWER.—Active bleeding cannot continue after death because the heart has stopped. Blood still fluid may run out of torn vessels after death, if the conditions are favorable, but for how long and to what extent cannot be stated because the conditions involved would vary greatly in different cases. In the case mentioned, it says that there was "a small pool of blood under the man." It may well be that this pool of blood was caused by the oozing of bloody serum or blood stained cerebrospinal fluid from the wounds in the head. In any case, if the man was dead when thrown out, the "pool of blood" was not due to actual hemorrhage. In cases of hemophilia, oozing or bleeding may continue longer.

ECZEMA OF AUDITORY CANAL

To the Editor:—I have a case of moist weeping eczema of the ear canal in a dentist. I have used 10 per cent silver nitrate, have kept water out of it, and also used 5 per cent menthol and liquid petrolatum. Since the treatment has not helped, I should like to have you suggest one. The patient is in perfect health. At times when the feet become hot in summer, small edematous patches appear on them. Please omit name.

M.D., Ohio.

ANSWER.—In cases of eczema of the external auditory canal, when simple measures such as have already been applied do not give the desired result, it is sometimes desirable to consult a dermatologist. In some of these instances the application of x-rays in certain definite doses is beneficial. In some cases this condition may be an evidence of allergy, and the tests for protein sensitization should be made.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 9-13. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Oral.* New York, Dec. 15-16. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF OPHTHALMOLOGY: Cleveland, June 11. Sec., Dr. William H. Wilder, 122 S. Michigan Blvd., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Cleveland, June 11. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

ARIZONA: Phoenix, Jan. 2-3. Sec., Dr. J. H. Patterson, 320 Security Bldg., Phoenix.

COLORADO: Denver, Jan. 2. Sec., Dr. Wm. Whitridge Williams, 422 State Office Bldg., Denver.

DELAWARE: Wilmington, Dec. 12-14. Sec., Dr. Harold L. Springer, 1013 Washington St., Wilmington.

DISTRICT OF COLUMBIA: Washington, Jan. 8-9. Sec., Dr. W. C. Fowler, 203 District Bldg., Washington.

HAWAII: Honolulu, Jan. 8-11. Sec., Dr. James A. Morgan, 48 Young Bldg., Honolulu.

KANSAS: Topeka, Dec. 12-13. Sec., Dr. C. H. Ewing, Larned.

MARYLAND: *Regular.* Baltimore, Dec. 12-15. Sec., Dr. Henry M. Fitzhugh, 1211 Cathedral St., Baltimore. *Homeopathic.* Baltimore, Dec. 13-14. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MINNESOTA: *Basic Science.* Minneapolis, Jan. 2-3. Sec., Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Regular.* Minneapolis, Jan. 16-18. Sec., Dr. E. J. Engberg, 350 St. Peter St., St. Paul.

NATIONAL BOARD OF MEDICAL EXAMINERS: The examinations will be held at centers in the United States where there are five or more candidates, Feb. 14-16. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

NORTH DAKOTA: Grand Forks, Jan. 2. Sec., Dr. G. M. Williamson, 4½ S. 3rd St., Grand Forks.

OREGON: Jan. 2-4. Sec., Dr. Joseph F. Wood, 509 Selling Bldg., Portland.

PENNSYLVANIA: Philadelphia, Jan. 2-6. Sec., Mr. W. M. Denison, 400 Education Bldg., Harrisburg.

RHODE ISLAND: Providence, Jan. 4-5. Dir., Dr. Lester A. Round, 319 State Office Bldg., Providence.

SOUTH DAKOTA: Pierre, Jan. 16-17. Dir., Dr. Park B. Jenkins, Pierre.

TENNESSEE: Memphis, Dec. 21-22. Sec., Dr. H. W. Qualls, 130 Madison Ave., Memphis.

WASHINGTON: *Basic Science.* Seattle, Jan. 11-12. *Regular.* Seattle, Jan. 15-16. Dir., Mr. Harry C. Huse, Olympia.

WISCONSIN: *Basic Science.* Milwaukee, Dec. 16. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee. *Regular.* Madison, Jan. 9-11. Sec., Dr. Robert E. Flynn, 401 Main St., LaCrosse.

Hawaii July Report

Dr. James A. Morgan, secretary, Board of Medical Examiners, reports the oral and written examination held in Honolulu, July 10-13, 1933. The examination covered 10 subjects and included 55 questions. An average of 75 per cent was required to pass. Four candidates were examined, all of whom passed. One physician was licensed by endorsement. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Northwestern University Medical School		(1933)	85.6,* 87.7*
Rush Medical College		(1933)	81
St. Louis University School of Medicine		(1932)	80.6

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Washington University School of Medicine		(1931)	N. B. M. Ex.

* License withheld pending presentation of M.D. degree.

Iowa June Examination

Mr. H. W. Grefe, director, Division of Examinations and Licenses, reports the written examination held by the Iowa State Board of Medical Examiners, June 6-8, 1933. The examination covered 8 subjects and included 100 questions. An average of 75 per cent was required to pass. One hundred and two candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Northwestern University Medical School		(1933)	87.1
Rush Medical College		(1933)	85.6
School of Medicine of the Division of the Biological Sciences		(1933)*	87.4
State University of Iowa College of Medicine		(1933)†	78.9, 80.4, 80.9, 81.5, 81.9, 82, 82.6, 82.8, 82.9, 83, 83.1, 83.3, 83.4, 83.5, 83.8, 84.3, 85, 85, 85, 85, 85.3, 85.3, 85.4, 85.4, 85.4, 85.5, 85.5, 85.5, 85.5, 85.6, 85.6, 85.6, 85.8, 85.8, 85.8, 85.8, 85.9, 85.9, 85.9, 86, 86.1, 86.1, 86.3, 86.4, 86.4, 86.5, 86.5, 86.5, 86.5, 86.6, 86.6, 86.6, 86.6, 86.6, 86.9, 86.9, 86.9, 86.9, 87.1, 87.1, 87.1, 87.3, 87.4, 87.4, 87.5, 87.5, 87.6, 87.6, 87.8, 87.8, 88, 88.1, 88.1, 88.1, 88.3, 88.3, 88.4, 88.4, 88.5, 88.8, 88.9, 89, 89.1, 89.3, 89.6, 90, 90.3, 90.4, 91, 91.1, 92

University of Kansas School of Medicine	(1931)	83.1
Creighton University School of Medicine	(1931)	84.6, (1933)† 84.1, 86, 89.6
University of Nebraska College of Medicine	(1931)	86.3
Queen's University Faculty of Medicine	(1927)	80.3
University of Toronto Faculty of Medicine	(1929)	90.8

Nine physicians were licensed by reciprocity and one by endorsement during September. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Hahnemann Medical College and Hospital, Chicago		(1908)	S. Dakota
Loyola University School of Medicine		(1933)	Illinois
Northwestern University Medical School		(1910)	S. Dakota
Rush Medical College		(1933)	Illinois
University of Illinois College of Medicine		(1933, 2)	Illinois
St. Louis University School of Medicine		(1931)	Missouri
Creighton University School of Medicine		(1932)	Nebraska
Marquette University School of Medicine		(1932)	Wisconsin

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Harvard University Medical School		(1931)	N. B. M. Ex.

* This applicant has received a four-year certificate and will receive an M.D. degree and Iowa license on completion of internship.

† The licenses of these applicants are being withheld pending completion of internship.

Ohio Reciprocity and Endorsement Report

Dr. H. M. Platter, secretary, Ohio State Medical Board, reports 14 physicians licensed by reciprocity and 2 physicians licensed by endorsement, Oct. 3, 1933. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado School of Medicine		(1925)	Colorado
Howard University College of Medicine		(1925), (1932)	Maryland
Rush Medical College		(1902)	Alaska
Johns Hopkins University School of Medicine		(1922)	Maryland
University of Maryland School of Medicine and College of Physicians and Surgeons		(1919)	W. Virginia
University of Michigan Medical School		(1930), (1932)	Michigan
Washington University School of Medicine		(1931)	Missouri
Cornell University Medical College		(1918)	New York
Jefferson Medical College of Philadelphia		(1929)	Penna.
Meharry Medical College		(1926, 2)	Tennessee
Queen's University Faculty of Medicine		(1929)	New York

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Arkansas School of Medicine		(1932)	N. B. M. Ex.
Harvard University Medical School		(1929)	N. B. M. Ex.

Wisconsin Reciprocity Report

Dr. Robert E. Flynn, secretary, Wisconsin State Board of Medical Examiners, reports the special reciprocity meeting held in Milwaukee, Sept. 15, 1933. Fourteen candidates were licensed. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Yale University School of Medicine		(1929)	New York
Emory University School of Medicine		(1931)	Georgia
Rush Medical College		(1929), (1931), (1932)	Illinois, Michigan
University of Illinois College of Medicine		(1930)	Minnesota
State University of Iowa College of Medicine		(1925)	Iowa
Johns Hopkins University School of Medicine		(1926)	Michigan
Harvard University Medical School		(1931)	Maine
University of Michigan Medical School		(1929)	Michigan
Washington University School of Medicine		(1931)	Missouri
University of Nebraska College of Medicine		(1929)	N. Dakota
Marquette University School of Medicine		(1929)	Colorado
Osteopath*			Missouri

* Licensed to practice osteopathy and surgery.

Colorado October Report

Dr. William Whitridge Williams, secretary, Colorado State Board of Medical Examiners, reports the written examination held in Denver, Oct. 3, 1933. The examination covered 8 subjects and included 80 questions. An average of 75 per cent was required to pass. Two candidates were examined, both of whom passed. Five physicians were licensed by endorsement. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Temple University School of Medicine		(1932)	80
Tartu Ülikooli—Faculté de Médecine de l'Université de Tartu		(1926)	76

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
College of Medical Evangelists		(1921)	Wisconsin, (1933) N. B. M. Ex.
Northwestern University Medical School		(1916)	Michigan
University of Nebraska College of Medicine		(1932)	Nebraska
McGill University Faculty of Medicine		(1931)	N. B. M. Ex.

Book Notices

Migraine: Diagnosis and Treatment. By Ray M. Balyeat, M.A., M.D., F.A.C.P., Associate Professor of Medicine and Lecturer on Diseases Due to Allergy, University of Oklahoma Medical School. Cloth. Price, $3. Pp. 242, with 26 illustrations. Philadelphia & London: J. B. Lippincott Company, 1933.

The author bases his observations on about 350 cases seen during the last four years in which a diagnosis of migraine was made; he reports sixty-five cases in detail as typical of headache due to allergy. He emphasizes that "migraine refers to paroxysmal attacks of hemicrania (occasionally bilateral headache) associated with sensory and motor disturbances," the latter indicating disturbance of the cerebral cortex. He also points out that headaches without cortical symptoms may also be allergic or may be nonallergic; neither of these belongs in the migraine group. Typical migraine he regards as allergic; stress and strain are to be considered secondary factors, just as change of weather must be considered a secondary factor in initiating an attack of bronchial asthma. The chapters on the history, heredity and physiopathologic mechanism of migraine are excellent. Emphasis is laid, with good reason, on the theory that symptoms are due to localized edema in the pia or cortex of the brain or in both, thus explaining the multiple and temporary symptoms of cortical irritation. The edema is probably due to increased capillary permeability in these localized areas and this, in turn, to hypersensitivity (allergy) to one or more foods. In other words, the mechanism of the edema of the brain is probably similar to that which is believed to occur in urticaria, hay fever, bronchial asthma and the other allergic diseases.

Issue can be taken with the author on the following points: 1. His description of migraine in children is vague and leads to doubt as to the correct diagnosis; fever and vomiting, without headache, are the symptoms reported. Even the fact that later on in life typical migraine occurs in these individuals does not prove at all that the childhood attacks were true migraine. In the absence of headache there would seem to be no basis for diagnosing migraine. Patients such as these probably account for the high percentage of cases in children quoted by the author, who states that 2 per cent of all children have migraine before the age of 10; this figure seems high in the experience of other men who have studied migraine. 2. The author contradicts himself on the results of his skin tests; on one page he obtains only 10 per cent negative tests; on another, 30 per cent. In any case, other men who have made skin tests of patients with migraine have not been able to obtain anywhere near such a high percentage of positive skin tests. 3. His results of treatment, as quoted, are also better than those obtained by most other allergists. The figures given are: excellent (from 80 to 100 per cent of relief), 30 per cent; good (from 60 to 80 per cent of relief), 30 per cent; fair (from 40 to 60 per cent of relief), 20 per cent; poor, 20 per cent.

The author brings out quite correctly that skin tests must be supplemented by clinical study and that cyclic vomiting in infancy and early childhood may be and often is the forerunner of migraine or other allergic diseases. The book is well worth the attention of all interested in migraine and correctly points out that the treatment from the allergic point of view offers more to the patient than any other method so far discovered.

A Treatise on Materia Medica and Therapeutics Including Pharmacy, Dispensing, Pharmacology and Administration of Drugs. By the late Rakhaldas Ghosh. Thirteenth edition by Birendra Nath Ghosh, F.R.F.P. & S., Professor of Pharmacology, Carmichael Medical College, Calcutta. Cloth. Price, Rs.7/8; 12s.6d. Pp. 712. Calcutta: Hilton & Company, 1933.

This edition has been brought up to the revision of the British Pharmacopeia of 1932 and has assumed to a considerable extent the characteristics of British and American books on the subject. Nevertheless, it shows local color, as it contains tables of Indian domestic weights and measures. It reflects local experience in India, as one can see from such statements as "The usual dose of sodium aurothiosulphate (sanocrysin) for Indian patients is smaller and the initial course should be as follows, viz: 0.1-0.2 Gm., etc." In kala-azar,

urea stibamine is especially recommended as giving the quickest results and being perhaps the best preparation. Interesting is part VIII, on "Indian Indigenous Drugs," in which some of the more important and more commonly used drugs of India are discussed. Thus one finds adhatoda, which by virtue of an alkaloid, "vasicine," relaxes bronchial muscles in the treatment of asthma; boerhaavia, the alkaloid of which, "punarnavine," acts as a diuretic in the treatment of dropsy; berberis, the alkaloid of which, "berberine," has been used successfully in the treatment of leishmaniasis; and kurchi, the alkaloid of which, "kurschicine," has a specific action on Endamoeba histolytica and is also of value in bacillary dysentery. Apparently, India still has some remedies that Western medicine might do well to investigate.

Blood Pictures: An Introduction to Clinical Hæmatology. By Cecil Price-Jones, M.B. Third edition. Cloth. Price, $2.40. Pp. 71, with 12 illustrations. Baltimore: William Wood & Company, 1933.

There has been a distinct advance in hematologic information since the previous edition of this book twelve years ago. It was originally published to satisfy the need of the students and workers in clinical laboratories who desired such information and as a guide for clinicians in the interpretation of reports on blood examinations. Accordingly, clinical descriptions and treatment were for the most part omitted. The book is not intended for and is not a complete hematologic textbook. The author has purposely omitted the theoretical aspect of hematology. But the advisability of such a step is questioned. If the book were an atlas on blood pictures, such an omission would be understandable; but it does not seem plausible to present a guide for interpretation of blood without touching on some of the theoretical considerations. The plates of the blood cells are not well done. They are lacking in sufficient nuclear and cytoplasmic detail so necessary for successful recognition of the various types of cells. The illustrations do not seem to be sufficient for a work of this type. The book is divided into two parts. In the first part there are concise discussions on the technic of blood examinations, and on the blood cells and the normal blood picture. The author's discussion of the normal blood appearances in infancy is totally inadequate. This is a serious omission, since they are totally different in this period of life from what they are in later childhood and adult life. The second part of the book is devoted to a discussion of blood pictures in the diagnoses of disease. There is doubtful virtue in the author's separation of bacterial infections into separate chapters on coccal, bacterial and protozoal etiology. In his introduction he states that the leukoid type of blood is associated with bacillary and lymphoid plus mononuclear type with protozoal infection. He modifies this by stating that other factors must be given consideration and then proceeds to discuss the response to bacterial infection without giving due stress to the modifying factors. Other chapters include discussions on blood diseases, the blood picture of malignant disease and hemocytometry. While the work is concise and presents many facts of interest, it is doubtful whether it will meet the needs of many students or physicians interested in hematology, even apart from its clinical applications.

Clinical Disorders of the Heart Beat: A Handbook for Practitioners and Students. By Sir Thomas Lewis, C.B.E., F.R.S., M.D., Physician in Charge of Department of Clinical Research, University College Hospital, London. Seventh edition. Cloth. Price, 6/6. Pp. 127, with 55 illustrations. London: Shaw & Sons, Ltd., 1933.

This will be welcomed by students. Its authoritativeness and frequent editions have given this small handbook the distinction and dignity of a classic, reminding one of the frequent editions of Osler. The present edition compares well with its predecessors, containing even more keenly analytic clinical observations, evidence perhaps of a broadening and deepening of the author's bedside experience. In the preface one finds the statement that emphasis on the bedside recognition of cardiac irregularities, without graphic records, is a main objective. The book consists of eight chapters, each chapter, following the first, which is on the identification of disorders of the heart beat, discussing the most important seven forms of cardiac disorders, under the headings of sinus arrhythmia, heart block, premature contractions or extrasystoles, simple paroxysmal tachycardia, auricular flutter, auricular fibrillation, and alternation of the heart. Each chapter follows more or less a similar grouping of topics: definition, nature of cardiac disorders, etiologic and pathologic relations, recognition, symptomatology, prognosis, treatment. Throughout, one is impressed by the simplicity, clarity and beauty of the text, as well as the continuous emphasis on the value of clinical data obtained at the patient's bedside. A number of minor criticisms are noted: the omission of the use of ephedrine in the treatment of heart block (p. 40); failure to mention the association of paroxysmal tachycardia with coronary thrombosis; nodal tachycardia; the difference in gravity and prognosis between auricular and ventricular paroxysmal tachycardia. As evidence of the beauty and dramatic quality of certain portions of the text, the following passage, from the section on prognosis of alternation of the heart, may be quoted: "Alternation of the pulse belongs to a small group of phenomena witnessed by those who attend the sick, which, treated as isolated signals, are in themselves emphatic and portentous. It ranks with subsultus tendinum, with optic neuritis, with the risus sardonicus and other ill omened messengers. It is the faint cry of an anguished and fast failing muscle, which, when it comes, all should strain to hear, for it is not long repeated. A few months, a few years at most, and the end comes."

The History and Epidemiology of Syphilis. By Wm. Allen Pusey, A.M., M.D., LL.D. The Gehrmann Lectures, University of Illinois, MDCCCCXXXIII. Cloth. Price, $2. Pp. 113, with illustrations. Springfield & Baltimore: Charles C. Thomas, 1933.

This small but important book consists of three chapters of equal length, owing to the fact that it consists of three lectures given by the author under the Adolph Gehrmann fund. The first lecture, on the beginning of syphilis, takes up the old argument as to the place of origin of the disease as considered from the European point of view. So convincing, apparently incontrovertible, is the evidence presented by Dr. Pusey that the old argument seems to be settled. Syphilis was imported into Europe from the West Indies by the members of Columbus's first expedition. It is an intensely interesting story. The quotation from the writing of Dias de Isla, a noted physician contemporary to Columbus, stating that "this serpentine disease" afflicting the sailors of Columbus was entirely unfamiliar to him and his colleagues, is a high point in this part of the story. A number of the oldest illustrations of syphilis are reproduced for this chapter. The second part, on the development of knowledge concerning syphilis, is the story of the clinical study of the disease during the next 300 years. The author resents the insinuation that the men of medicine were slow to understand the facts of the disease and affirms his opinion that, in view of the means at hand, they did a wonderfully good job. One is too apt to judge them without realizing the limitation of their basic knowledge and scientific appliances. Brief mention is made of the physicians prominent in this clinical study and of the particular service rendered by each one. Portraits of many of them are reproduced, and several pictures illustrate the early methods of treatment. Following this comes the story of the dramatic developments during the last century, the discoveries made possible by the aid of modern science. Prominent figures in this development are represented by portraits. The third chapter, on the epidemiology of syphilis, is equally interesting and instructive. Dr. Pusey agrees that 5 per cent of the whole population is a fair estimate of the prevalence of the disease in Great Britain and the United States and quotes Parran's estimate that about 871,000 new cases occur each year in this country. The various methods of combating syphilis and the measure of their success are discussed. The author's optimistic attitude on this point is shown by his belief that, when the adoption of personal prophylaxis and the reduction of contagiousness by treatment become general, medicine can claim "to have furnished means for the control in great part of the ravages of this hideous scourge of modern man." While not belittling the moral view of the question of prophylaxis, he emphasizes the overwhelming importance of physicians being governed by the medical needs of the situation. The clear, simple and concise style of the author is well known and nowhere more evident than in this book, which is beautifully

printed and should be read by every physician and by every layman wise enough to be interested in this most important disease.

The Thyroid Gland: Its Chemistry and Physiology. By Charles Robert Harington, M.A., Ph.D., F.R.S., Professor of Pathological Chemistry in the University of London. Cloth. Price, $4.50. Pp. 222, with 28 illustrations. London: Oxford University Press, 1933.

This is an authoritative presentation of the known facts and a discussion of the theories of the chemistry of the thyroid gland in relation to the physiology and pathology of the gland itself as well as to the general chemistry of the body. Probably nowhere in medical literature is to be found such a compact, simple and understandable presentation of the subject as is to be found in this monograph. Professor Harington precedes the discussion of each phase of the subject by a historical sketch leading up to the present conception of the activity of the thyroid gland in both health and disease, and there is appended a valuable bibliography of important historical material since ancient times. The chapters dealing with the chemistry of thyroxine and its derivatives should be of interest to clinicians, since this highly technical subject is presented in as simple a manner as possible, as can be done only by a master of his subject. On the other hand, the chapters dealing with the more clinical phases of the subject also prove of interest to clinicians as representing a discussion of the subject from the chemical point of view. It is safe to say that all interested in the problems presented by the thyroid gland in both health and disease should be familiar with the material contained in this scholarly monograph.

Life-Giving Light. By Charles Sheard, Ph.D., Sc.D., Professor and Director of Biophysical Research, the Mayo Foundation, University of Minnesota, and the Mayo Clinic. A Century of Progress Series. Cloth. Price, $1. Pp. 174, with 24 illustrations. Baltimore: Williams & Wilkins Company, in Cooperation with the Century of Progress Exposition, 1933.

In this volume the relationship of light to life is considered in a coordinated series of essays written in a delightfully conversational style. Not only the biologic and physiologic reaction to light of animal tissues and plant substance are dealt with, but also the physics of light, nonmathematically. Things scientific are explained in terms that should be understandable to an interested and inquiring layman. Being one of A Century of Progress Series, it is probably not intended as a textbook; but it might well be recommended as parallel reading for the beginning student of biophysics. The contents deal with the history of artificial illumination, elements of the light spectrum, measurements of light energy, lens, storing of light energy in plant and animal life, meaning of vitamins and, finally, a short, fanciful discussion on the mysteries of life.

La angina de pecho. Por Dr. Gregorio N. Martinez, professor de clinica médica de la Facultad de Córdoba. Cloth. Pp. 280, with illustrations. Buenos Aires: Humberto Andreetta, 1933.

This excellent monograph is based on a painstaking study and analysis of the more important writings contained in the enormous literature of angina pectoris, as well as on personal investigation and clinical experience. After a few introductory paragraphs there are chapters on the historical aspects of the subject, clinical types, symptomatology, etiology, pathogenesis, prognosis and treatment. About forty pages is given to each of the topics symptomatology, pathogenesis and treatment. The volume concludes with about seventy pages devoted to the clinical histories and discussion of nearly fifty cases. The work is particularly suited to the special student of heart disease. The undergraduate or the general practitioner looking for guidance in the essentials of practice would not be interested in and might be bewildered by the somewhat lengthy consideration of various theories and the frequent citation of authorities, with whose italicized names some of the pages fairly bristle. Most of the many illustrations are well executed and helpful electrocardiograms. In general, the author's views are the commonly accepted ones that would be called sound. Some might not fully agree with his statement in his introductory chapter that the paroxysms of angina pectoris are in the majority of cases accompanied by histologic and chemical changes in the blood, sclerotic manifestations in the arteries, and characteristic alterations of the electrocardiogram. It is to be noted, however, that under the caption of angina he is including those cases in which there is coronary thrombosis. Martinez is an adherent of the coronary artery theory of angina pectoris, as will be seen from the following quotation: "As anatomic-pathologic substratum of this affection one must really accept a histochemical change in the coronary arteries and a special sensitiveness of the plexuses of nerves that accompany them" (p. 7).

Actinotherapy Technique: An Outline of Indications and Methods for the Use of Modern Light Therapy. With a foreword by Sir Henry Gauvain, M.D., M.Chir., F.R.C.S. Fabrikoid. Price, $1. Pp. 184. Slough, England: Sollux Publishing Company, 1933.

Since the introduction of this book is signed "Hanovia," it can be regarded as a publication edited by the manufacturer of Hanovia Ultraviolet Lamps. The book is divided into three parts: Part I contains five chapters, one a good but short chapter of physical data on mercury vapor lamps; another a mediocre discussion on physiologic effects; two mediocre chapters on ultraviolet dosage, and a short chapter on luminous heat and infra-red rays. Part II contains indications and details of technic, and part III is a supplementary list of books and papers. Of the 920 references given, a large portion refer to reliable research, while others are of doubtful value. More than half the book is devoted to indications and technic. Between abscesses and xanthoma there are more than 200 indications given for the use of ultraviolet radiation. Many of the indications and statements are not accepted by the medical profession generally. For example, one finds statements, such as: "Chorea. Irradiation rapidly mitigates symptoms and relieves insomnia"; "Diabetes. Good results are obtained in cases of glycosuria"; "Goitre and Exophthalmic Goitre. In early cases benefit frequently follows on the use of actinotherapy"; "Osteomyelitis. American writers report complete healing of the sinus after a few local treatments, combined with a Tonic Course of general irradiation." Such statements and others like them identify this book as of little value to the general practitioner seeking scientific information regarding the practice of ultraviolet therapy.

Red Blood Cell Diameters. By Cecil Price-Jones, M.B. Cloth. Price, $3.50. Pp. 82, with 44 illustrations. New York & London: Oxford University Press, 1933.

Much of the recent progress in the study of anemia and grouping for therapeutic purposes has followed advances in the scientific development of hemocytometry. The data obtained by measuring the red cell diameter in certain types of anemia are now used for diagnosis and in following the course of therapy. The author has been one of the most active contributors in this field and is particularly well qualified to present the subject. He has given a concise and scholarly summary. The introduction is concerned with a historical review of the scientific study of the erythrocyte and its measurement. The technic of hemocytometry is fully described and the normal, physiologic variations and pathologic significance are clearly indicated. The work is an excellent summary of mathematically controlled observations in normal and anemic subjects, which combines not only the work of the author but other workers in the field as well. It is highly recommended as an authoritative source of information on hemocytometry and some of its clinical applications.

Handbuch der inneren Sekretion: Eine umfassende Darstellung der Anatomie, Physiologie und Pathologie der endokrinen Drüsen. Herausgegeben von Dr. Max Hirsch. Band II, Lieferung 10: Die Physiologie des Hodens. Von Prof. Dr. Knud Sand. Paper. Price, 43.50 marks. Pp. 2017-2300, with 110 illustrations. Leipzig: Curt Kabitzsch, 1933.

This section is written by Prof. Knud Sand of Copenhagen and constitutes in reality a monograph on the physiology of the testis. Professor Sand has himself made important contributions in this field, particularly on birds, and this work discloses the hand of a master and true scientist in clarity of exposition, selection of illustrated material, and analysis of controversial data. Informed readers will finish the volume with the regret that the author did not include chapters on the relation of the testis mechanism to some of the other glands of internal secretion. Professor Sand's contribution ranks as one of the best in the large handbook.

Medicolegal

Malpractice: Burns from Diagnostic Use of Roentgen Ray; Standard of Care Not Dependent on Locality.—The defendant-physicians made fluoroscopic examinations of the plaintiff's hand with a view to the removal of a needle. Burns followed. The plaintiff brought suit, alleging negligence. The trial court set aside a verdict in favor of the defendants and ordered a new trial. The defendants thereupon appealed to the Supreme Court of Oregon.

The plaintiff testified that in accordance with instructions from the defendants she held her hand in front of a fluoroscope, at a distance of 10 inches, for from fifteen to twenty minutes, and that after a lapse of five or six minutes the fluoroscope was again used five or six times, the duration of the several exposures being the same. The defendants admitted that five or six fluoroscopic examinations were made, but they asserted that no exposure lasted more than ten seconds. The question, said the Supreme Court, is, Did the defendants fail to exercise reasonable care in their use of the x-ray machine? The undisputed evidence showed that if the exposures were made in the manner alleged by the patient, they were improper and injury would result. The defendant-physicians, however, contended that they did not expose their patient's hand to an overdose of roentgen rays and that the condition of her hand was due to an infection.

A physician and surgeon, said the Supreme Court, is not a guarantor of results. Ordinarily, however, he impliedly contracts that he will exercise the degree of care and skill usually possessed and exercised by those engaged in the same line of practice in similar localities. As a general rule, the degree of care and skill depends somewhat on locality. But the duration of exposure, especially when the roentgen rays are not used for treatment, has become so fixed and exact that physicians are cognizant of it, whether they practice in Pumpkin Center or in New York City. It would be negligence for a physician to expose a patient to roentgen rays for the length of time claimed by the plaintiff, regardless of the locality in which the physician was practicing. The trial court instructed the jury that the defendants were to be judged, not by the standard of care employed in all localities, but by the standard which is employed by physicians "in localities like Rainier and similar localities." Although this instruction was correct as a statement of the general rule, said the Supreme Court, it was, as applied to the facts of this case, misleading and prejudicial. The patient was entitled to have the jury instructed that in the use of their x-ray machine the defendant-physicians were to be judged according to the standard of care, skill and diligence that would have been exercised by "a physician and surgeon of ordinary care, skill and diligence," under the same circumstances and conditions, *regardless of locality.*

The authorities are in conflict as to whether negligence may be inferred solely from the fact that a roentgen burn has occurred. In the present case, said the Supreme Court, it is not necessary to invoke such a doctrine, since there was testimony tending to show an improper exposure. The trial court instructed the jury that the fact that the hand was burned by the roentgen rays was no evidence that the physicians were guilty of malpractice. This instruction was technically correct, but it may have misled the jury into the belief that the burn could not be taken into consideration along with other facts and circumstances. The jury was entitled to consider the alleged roentgen burn together with the evidence relating to the duration of exposure. The instruction should have been amplified. The same can be said, continued the court, with respect to the instruction of the trial court that "a physician or surgeon practicing his profession is not liable for errors or mistakes of judgment." A physician or surgeon is not liable for error of judgment, if the exercise of judgment is consistent with the exercise of reasonable care and diligence. But if the defendant-physicians, in the use of their x-ray machine, failed to follow the formula relative to the time of exposure universally accepted by the profession, it would not do for them, in order to avoid liability, to say, "We exercised our best judgment." To avoid liability, the judgment must be based on the exercise of reasonable care and skill.

The instructions given by the trial court, considered in their entirety, concluded the Supreme Court, are open to criticism and the trial court was warranted in setting aside the verdict of the jury and granting the plaintiff a new trial.—*King v. Ditto (Ore.), 19 P. (2d) 1100.*

Evidence: Verdict of Coroner's Jury Inadmissible.—Blackwell was tried for murder. In the course of his trial a justice of the peace, who had acted as coroner when the homicide occurred, testified, over objection by the defendant, that he had caused an inquest to be held over the body of the deceased, and the entire record of the inquest was read in evidence. Blackwell was convicted. He appealed to the Court of Appeals of Alabama, claiming that the admission of the record of the inquest was error.

The statutory proceedings of a coroner's inquest are wholly ex parte, said the Court of Appeal. The verdict of a coroner's jury is not binding on the defendant on trial for the alleged murder. To try the defendant on the ex parte verdict of a coroner's jury would deprive him of his right to be confronted with the witnesses against him and to cross-examine them. The verdict of the coroner's jury in the present case may or may not have been based on evidence receivable in courts of justice. In cases of homicide, said the court, quoting Ruling Case Law, vol. 6, p. 1172, the general rule is that the finding of a coroner or the verdict of a coroner's jury is not admissible in evidence for any purpose. The only object of a coroner's proceeding is to furnish prompt information that may guide the officers of the law in apprehending and prosecuting persons who appear to have been connected with a supposed homicide and to discover the evidence by which it may be investigated. Strictly speaking, the verdict of a coroner's jury has no legal effect. To admit the verdict and proceedings in evidence in a prosecution for homicide would lead to the subversion and final overthrow of the jury system and in nearly every case the rights of the commonwealth or of the accused would be prejudiced. The judgment of conviction in the trial court was therefore reversed and the case remanded.—*Blackwell v. State (Miss.), 146 So. 628.*

Evidence: Angina Pectoris a Disease of the Heart.—The appellant insurance company insured the life of the deceased. It limited its liability, however, to a return of the premiums paid, if the insured died from heart disease within one year from the date of the policy. The insured died within the year. The death certificate stated the primary cause of death as angina pectoris, with chronic aortitis as a contributing cause. The beneficiary of the policy insisted that the words "angina pectoris" denote only a symptom, and not a disease of the heart, and brought suit. From a judgment in favor of the beneficiary, the insurer appealed to the Supreme Court of Alabama. A medical expert testified that the words "angina pectoris" mean a pain in the chest. But you have got to have heart disease, he testified, to have angina pectoris; angina pectoris is really a name for heart disease. In Corpus Juris, vol. 2, p. 1346, angina pectoris is described as a disease of the heart. The Supreme Court of Alabama concluded, therefore, that angina pectoris is a disease of the heart and that that is the commonly accepted meaning of the term. The judgment in favor of the beneficiary was reversed and the case remanded.—*Liberty Nat. Life Ins. Co. v. Tellis (Ala.), 146 So. 616.*

Society Proceedings

COMING MEETINGS

American Academy of Orthopedic Surgeons, Chicago, Jan. 8-10. Dr. Philip Lewin, 104 South Michigan Blvd., Chicago.

Philippine Islands Medical Association, Manila, Dec. 12-15. Dr. Antonio S. Fernando, 817 Taft Avenue, Manila, Secretary.

Society of American Bacteriologists, Philadelphia, Dec. 27-29. Dr. James M. Sherman, Cornell University, Ithaca, N. Y., Secretary.

Southern Surgical Association, Hot Springs, Va., Dec. 12-14. Dr. Robert L. Payne, 142 York Street, Norfolk, Va., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Cancer, New York

18: 803-1086 (Aug.) 1933

Carcinoid Tumors of Gastro-Intestinal Tract (So-Called Argentaffine Tumors). T. S. Raiford, Baltimore.—p. 803.
Curriculum Vitae of Two Gastric Cancers: Contribution to Solution of Problem of Stomach Carcinoma. T. Scholz, New York.—p. 834.
Primary Carcinoma of Pancreas. N. L. Leven, Minneapolis.—p. 852.
Multiple Benign Epithelioma of the Scalp (Turban Tumors). F. Ronchese, Providence, R. I.—p. 875.
Further Studies on Blood Chemistry of Hens Bearing Rous Sarcoma No. 1. Helen M. Dyer and J. H. Roe, Washington, D. C.—p. 888.
*Experimental Study: Effect of Radium Emanation on Pancreas of Dogs. N. L. Leven, Minneapolis.—p. 899.
Effect of Exposure of Chickens Inoculated with Rous Sarcoma to Electromagnetic Waves of High Frequency. J. R. Ross, Toronto, Canada.—p. 905.
Intrathoracic Myxolipoma. F. C. Narr and A. H. Wells, Kansas City, Mo.—p. 912.
*Sarcomatous Degeneration of Uterine Leiomyoma with Metastases to Lungs and Heart: Case. M. Criscitiello, Jr., Pittsfield, Mass.—p. 919.
Rôle of Sodium, Potassium, Calcium and Magnesium in Cancer: Review. M. J. Shear, Boston.—p. 924.

Effect of Radon on Pancreas of Dogs.—Leven describes experiments on dogs which indicate that implantation of radon into the pancreas would be a safe procedure in suitable cases of carcinoma of the pancreas at the time of exploration or secondary to cholecystogastrostomy. Radon in gold seeds would be preferable to high voltage roentgen therapy, since the effect can be more accurately directed to the desired area. That the pancreas has definite power of regeneration has been adequately indicated experimentally. This should prove to be an additional factor of safety in the use of radiotherapy in carcinoma of the pancreas. The author states that his experiments should not be considered as constituting a claim that carcinoma of the pancreas can necessarily be cured by radiation.

Sarcomatous Degeneration of Leiomyoma.—Criscitiello presents a case of sarcomatous degeneration of uterine leiomyoma with unusual metastases to the lungs and the heart. Recognition of malignant changes should be attempted in the operating room by routine opening of all fibromyomatous tumors removed. If such changes are recognized, a more radical operation is in order. Sarcomatous degeneration of fibromyomas is not rare. The incidence, as reported by different writers, varies from 0.5 to as much as 10 per cent. Some authors deny that such malignant changes take place and claim that, if a sarcoma develops from a preexisting fibroma or myoma, it is due not to a degenerative process but to the development of a primary focus of a malignant condition. Although metastases from sarcoma of the uterus to the different organs and bones have been reported, metastases to the heart are exceedingly rare.

American Journal of Orthopsychiatry, Menasha, Wis.

3: 241-360 (July) 1933

Mental Health Emphasis in Education: Qualitative Study. H. C. Patey and G. S. Stevenson, New York.—p. 241.
Use of Play Technic as Experimental Procedure. D. M. Levy, New York.—p. 266.
Five Years' Experience in Supervision of Psychiatrists, Psychologists and Psychiatric Social Workers in Simultaneous Training: Section Meeting, 1933. Chairman, L. G. Lowrey, New York.—p. 278.
Certain Aspects of Treatment in Psychiatric Work with Children. Chairman, I. S. Wile, New York, members of the panel: G. Mohr, Phyllis Blanchard, Annette Garrett, Katharine Moore, G. H. J. Pearson, G. J. Rich, S. W. Hartwell, L. Schwartz and D. M. Levy.—p. 310.
Trends in Treatment. Grace F. Marcus, New York.—p. 337.
Evaluation of Psychologic Test Results. S. H. Tulchin, New York.—p. 349.

American Journal of Public Health, New York

23: 775-894 (Aug.) 1933

Loss of Actinic Sunshine as Health Problem of Cities. F. O. Tonney, Chicago.—p. 775.
Is Malnutrition Increasing? Esther Jacobs, Philadelphia.—p. 784.
Seasonal Distribution of Whooping Cough for Periods of High and Low Incidence. G. E. Harmon, Cleveland.—p. 789.
Epidemiology of Syphilis and Gonorrhea. W. L. Munson, Albany, N. Y.—p. 797.
Practical Uses of Diphtheria Immunization Records. E. S. Godfrey, Jr., Albany, N. Y.—p. 809.
Inaugural Address. J. L. Pomeroy, Los Angeles.—p. 813.
Training of Health Personnel. W. S. Leathers and A. E. Keller, Nashville, Tenn.—p. 816.
Relationship of Public Health to Doctor in Private Practice. C. W. Decker, Los Angeles.—p. 824.
Value of Culture Tests in Diagnosis of Diphtheria. Hazel M. Hatfield and Alice G. Mann, New York.—p. 847.
Convenient Feces Specimen Container. M. Frobisher, Jr., Baltimore.—p. 851.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

30: 145-288 (Aug.) 1933

Pineal Body: Roentgenologic Considerations. J. H. Vastine, Philadelphia.—p. 145.
*Roentgen Findings in Suppuration of Petrous Apex (Petrositis). H. K. Taylor, New York.—p. 156.
Roentgen Diagnosis of Spinal Deformities. M. L. Sussman and M. A. Kugel, New York.—p. 163.
Calcareous Concretions in Raynaud's Disease. H. E. Christman, Boston.—p. 177.
Genealogy of Roentgen Rays. O. Glasser, Cleveland.—p. 180.
Multiple Myeloma with Spinal Cord Involvement. H. W. Jacox and E. A. Kahn, Ann Arbor, Mich.—p. 201.
Absence of Left Diaphragm Associated with Inverted Thoracic Stomach. Z. Sagal, New York.—p. 206.
*Auditory Effects of Roentgen Rays in Dogs. E. Girden and E. Culler, Urbana, Ill.—p. 215.
Effective Applied Voltage as Indicator of Energy Emitted by Roentgen-Ray Tube. L. S. Taylor, G. Singer and C. F. Stoneburner, Washington, D. C.—p. 221.
Roentgen-Ray Output Comparisons of Therapy Circuits and Tubes. M. J. Gross and Z. J. Atlee, Chicago.—p. 229.
Physical Foundations of Chest Roentgenography: Part I. R. B. Wilsey, Rochester, N. Y.—p. 234.

Roentgen Observations in Suppuration of Petrous Apex.—Taylor states that for the demonstration of suppuration in the petrous apex the most information is obtained from a roentgenogram of the base of the skull, because the two pyramids are depicted at the same time and are contrasted by the surrounding bony structures and show their structural character and detail more clearly. The routine examination of the mastoid processes includes one view of the base of the skull. Should a complicating petrous suppuration develop, the original roentgenogram of the petrous bones is available for comparison with subsequent roentgenograms, permitting the detection of the earliest changes. The patient should be supine when the roentgenogram is being taken with the head, lower than the rest of the body, resting on the vertex, so that a line drawn through the external auditory canal and superior orbital margin is parallel to the casette, which is horizontal. The sagittal plane of the head should be perpendicular to the table. The tube should be tilted upward 15 degrees. The central ray should be directed 1 inch in front of the external auditory canal, in the midline. The same position can be accomplished by hyperextending the body, a block being used as a support in the mid and lower dorsal regions, the elevation being about 8 inches. Suppuration in the apical portion of the petrous pyramid can be recognized clinically and roentgenologically. The clinical recognition depends on profuse otorrhea, occurring after a period of cessation, following a simple mastoidectomy; pain along the distribution of the ophthalmic branch of the fifth nerve, retro-orbital, and low grade sepsis. The roentgen observations are diminished aeration, deficient trabeculations, intense atrophy, perforation and finally destruction of the apical contour. These changes occur only in pneumatized petrous pyramids. Operation is indicated when clinical symptoms and roentgenologic observations are present. In cases showing positive roentgenologic observations and no clinical symptoms the drainage is adequate and, if operation is not performed, probably there will finally be a protracted otorrhea.

Auditory Effects of Roentgen Rays.—Girden and Culler exposed two dogs to a variety of doses over a period of months so as to determine the effects of the roentgen rays on their auditory acuity. From their observations the authors suggest

the conditioned response technic as a means of direct study of the effects of roentgen rays on hearing in dogs. By means of this approach, accurate investigation of the effects of roentgen rays on hearing itself is permitted. In the animals reported on, as well as in subsequent studies nearing completion, an initial rise in auditory acuity results from exposure to small doses of roentgen rays generated at 85 kilovolts and 5 milliamperes. This increase in acuity is a transient effect lasting from two to four weeks. Cumulated doses up to 11,100 roentgens in one animal and over 4,400 in another did not result in death and did not impair the hearing. The skin burns were due to overexposure to soft rays. Spacing of the larger doses over longer periods of time avoids this hazard. The authors' investigation is being widened to include the study of the effects at higher voltages and also, by means of the oscillograph technic, the direct effect on the nervous mechanism involved in audition.

Annals of Surgery, Philadelphia

98: 161-320 (Aug.) 1933

Annular Gastrectomy: Further Observations on Cause of Its Failure. W. H. Barber, New York.—p. 161.
Tumors of the Stomach. W. Walters, Rochester, Minn.—p. 168.
Tumors of the Duodenum. G. P. LaRoque, Richmond, Va., and E. L. Shiflett, Cleveland.—p. 178.
Double Primary Malignant Tumors of the Colon. C. S. White, Washington, D. C.—p. 186.
Acute Obstruction of Duodenum Due to Submucous Hematoma. G. D. Oppenheimer, New York.—p. 192.
Perforated Peptic Ulcer in German Clinics: Analysis of Four Thousand Four Hundred and Two Cases. A. M. Graves, New Orleans.—p. 197.
*Acute Perforated Gastric and Duodenal Ulcers. H. K. Shawan, Detroit.—p. 210.
Total Gastrectomy. C. A. Roeder, Omaha.—p. 221.
Cardiospasm: Its Diagnosis and Treatment. H. J. Moersch, Rochester, Minn.—p. 232.
External Duodenal Fistula. D. A. Willis and J. M. Mora, Chicago.—p. 239.
*Excoriations Around External Gastro-Intestinal Fistulas: Experimental Studies on Their Etiology and Further Experience with the Kaolin Powder Treatment. F. W. Co-Tui, New York.—p. 242.
Arterial Embolectomy. M. Danzis, Newark, N. J.—p. 249.
Surgical Diseases of the Shoulder Bursae. J. M. Hitzrot, New York.—p. 273.

Gastric and Duodenal Ulcers.—Shawan reports a consecutive series of 227 cases of acute perforated gastric and duodenal ulcers in which operation was performed. Less than 2 per cent of the patients were women; the average age was 37 years. Perforations increased in frequency during the spring, reached a peak number in the summer, gradually decreased in number during the autumn, and reached the lowest rate in the winter months. As compared with the total number of operations done in the author's hospital during the period of thirteen years covered in his report, operations for perforated gastric and duodenal ulcers have increased in frequency nearly threefold. A definite history of chronic gastric ulcer was obtained in more than 80 per cent of the cases, and 10 per cent had had medical management. Severe pain in the epigastrium was the typical initial symptom. Vomiting occurred once or twice in about 50 per cent. Bloody vomitus was a rarity. The clinical observations were of far greater comparative value than those of the laboratory. Among the latter, fluoroscopic examination is the exception. On admission to the hospital, 85 per cent were immediately and correctly diagnosed. The mortality increased directly with the size of the opening, the amount and extent of the peritoneal soiling and the time allowed to elapse between rupture and operative treatment. Frequency of perforation, according to the location of the ulcer, was respectively duodenal, gastric and pyloric. Recovery was in the same sequence. The proportion of recovery remained nearly stationary for all ages between the second and sixth decades; 36 per cent died within the first twenty-four hours after operation. General peritonitis was the most frequent cause of death; then came shock, pneumonia and complications requiring secondary operations. Spinal anesthesia was the most satisfactory. Operative treatment, while individualized, was confined to simple closure, excision and closure, and closure with added gastrojejunostomy. Simple closure was employed in the last 132 cases with a 10 per cent reduction in mortality. Of these 227 patients 55, or 24.22 per cent, died and 172, or 75.77 per cent, recovered.

External Gastro-Intestinal Fistulas.—Co-Tui established by experiments on the dog that trypsin can cause skin excoriations. He treated 162 cases of perifistular excoriations with kaolin powder. The principle of the treatment is the removal of the enzyme trypsin by kaolin particles because of a difference in their electrical charge. A plentiful amount of kaolin powder is applied over the mouth of the fistula and all around it. The number of changes necessary depends on the condition of the abdominal wall and the amount of drainage. A safe rule is to change the powder as soon as it becomes saturated. In duodenal fistulas it is generally necessary to change the powder from every hour to every three hours; in ileostomies, from four to six hours; in cecostomies, from four to eight hours, and in sigmoidostomies twice a day. It must be borne in mind that the success of the treatment depends on the removal of as much of the enzyme as the fistula discharges. The application of petrolatum to the abdominal wall before using the powder defeats the purpose for which kaolin is used, as the petrolatum-coated particles of kaolin then become electrically inert.

Archives of Neurology and Psychiatry, Chicago

30: 481-708 (Sept.) 1933

Familial Spastic Paralysis: Report of Three Cases in One Family and Observation at Necropsy. H. A. Paskind and T. T. Stone, Chicago.—p. 481.
Reflex Changes After Injury to Pyramidal Tract in Macaque, Gibbon and Chimpanzee. W. Schick, New York.—p. 501.
Disturbances in Visuomotor Gestalt Function in Organic Brain Disease Associated with Sensory Aphasia. Lauretta Bender, New York.—p. 514.
Clinical Variables in Schizoid Personalities. J. Kasanin, Howard, R. I., and Zitha A. Rosen, Boston.—p. 538.
*Blood Cholesterol in Schizophrenia. J. M. Looney and Hazel M. Childs, Worcester, Mass.—p. 567.
Optic Pseudoneuritis and Pseudopapilledema. R. K. Lambert and H. Weiss, New York.—p. 580.
Myelitic and Myelopathic Lesions: V. Compression of the Spinal Cord by Expanding Lesions Producing Mild, Moderate or Marked Interference with Circulation Leading to Myelopathy. M. Keschner and C. Davison, New York.—p. 592.

Cholesterol in Schizophrenia.—Looney and Childs observed approximately fifty men presenting schizophrenia over a period of seven months at intervals of two weeks and of three months. The cholesterol content of the whole blood was determined by the method of Myers and Wardell. The mean cholesterol values were 146 ± 3 mg. per hundred cubic centimeters for the first period, 161 ± 2.8 mg. for the second period and 166 ± 2.5 mg. for the third period. The mean value for twenty-six normal men was 175 ± 5.2 mg. per hundred cubic centimeters. Both the schizophrenic patients and the controls showed great variability in the cholesterol values, the former having a standard deviation of about 20 mg. and the latter of 27 mg. The difference between the mean value for the first period and the mean values for the last two periods is believed to be due to a seasonal variation in the cholesterol content of the blood. No correlations could be shown between the blood cholesterol and the basal metabolic rate or the emotional status. Schizophrenia seems to be characterized by a slight degree of depression of the cholesterol content of the blood.

Canadian Public Health Journal, Toronto

24: 355-404 (Aug.) 1933

Presidential Address: Public Health Accomplishments in Light of Possible Achievement. W. Warwick, St. John, N. B.—p. 355.
*Value of Immune Serum in Poliomyelitis: Case Notes on Localized Outbreak in Prince Edward County, Ontario. N. H. Sutton, Peterboro, Ont.—p. 360.
The Work of the Health Organization of the League of Nations. J. G. Fitzgerald, Toronto.—p. 368.
Incidence of Disease in School Age Children. J. T. Phair, Toronto.—p. 373.
Algal Nuisances in Surface Waters. N. J. Howard and A. E. Berry, Toronto.—p. 377.

Value of Immune Serum in Poliomyelitis.—Sutton reports an outbreak of nineteen cases of poliomyelitis, eighteen of which were treated with convalescent serum. Of the eighteen, serum was administered to thirteen (group A) in a definitely preparalytic stage; to two (group B) in the late preparalytic stage, and to three (group C) in the early paralytic stage. An examination of these patients eight months later presented the following results: In group A there was a 100 per cent recovery with no paralysis. One patient in group B showed no paralysis. The other one showed complete recovery in the abdominal muscles and in three of the four extremities involved.

The left shoulder showed little or no improvement. This was a fulminant case, with 50 per cent recovery. The three patients in group C showed recovery to a marked degree in the less severely affected muscles, so that each patient will have only one extremity that will not function usefully. All can become self supporting. The one patient who did not receive serum, because he was seen too late, will be badly incapacitated and probably dependent.

Colorado Medicine, Denver

30: 317-366 (Sept.) 1933

Obliterating Appendix as Cause of Disturbances Connected with Abdominal Nerves and Lymphatics. L. Freeman, Denver.—p. 320.
Factors Affecting Mortality in Acute Appendicitis. G. B. Packard, Denver.—p. 322.
Cystic Appendix: Report of Three Cases. L. E. Likes, Lamar.—p. 327.
Demonstration of Normal and Pathologic Nephroptosis. H. H. Wear, Denver.—p. 333.
Obstetrics from the Standpoint of the General Practitioner. C. T. Knuckey, Lamar.—p. 338.
Uterine Hemorrhage. W. H. Halley and P. W. Whiteley, Denver.—p. 340.
Local Anesthesia in Thyroid Surgery. Virginia C. Van Meter, Denver.—p. 344.
Means and Methods of Goiter Prophylaxis. M. O. Shivers, Colorado Springs.—p. 345.

Georgia Medical Association Journal, Atlanta

22: 279-320 (Aug.) 1933

How Does Medicine Advance? C. R. Stockard, New York.—p. 279.
Congestive Heart Failure. S. T. R. Revell, Louisville.—p. 282.
*Present Status of Iodine Therapy in Hyperthyroidism. D. H. Poer, Atlanta.—p. 288.
Acrodynia. H. D. Youmans, Lyons.—p. 293.
Fibroid Tumor of Mesentery: Case Report. O. H. Weaver, Macon.—p. 295.
Neurologic Hazards of Spinal Anesthesia. W. A. Smith, Atlanta.—p. 297.
Vesical Calculi. R. Bell, Thomasville.—p. 303.
Artificial Pneumothorax. J. A. Redfearn, Albany.—p. 305.
Practitioner's Urologic Problems. W. L. Bazemore and V. H. McMichael, Macon.—p. 306.

Iodine Therapy in Hyperthyroidism.—Poer states that iodine will produce a remission in from 80 to 90 per cent of all cases of hyperthyroidism. The remission begins within forty-eight to seventy-two hours and reaches the point of maximum response in from ten to eighteen days. A dose of 6 mg. of iodine a day is necessary to produce the maximum response; a larger dose is advocated to insure this maximum benefit. Because of the similarity of response to iodine in both the hyperthyroidism associated with exophthalmic goiter and that appearing in toxic adenomas it may be said that the proper use of iodine is an adequate dose (5 drops daily at least), given over a period of from ten to eighteen days until the point of maximum response is reached; at this point, operation should be performed. Because of the dangers of postiodine reactions, development of refractoriness to iodine, the inability to cure hyperthyroidism permanently and the loss of its beneficial action in postoperative crises, iodine should not be used in any other manner in hyperthyroidism. If for any reason it becomes necessary to postpone or delay operation, iodine should not be administered until these reasons have been removed. A strictly medical regimen consisting of rest in bed, sedatives, ice caps and such local treatments as are indicated should be instituted until the patient is prepared for the surgical procedure. Iodine has no place in the treatment of the physiologic enlargement of the thyroid during puberty and early adolescence in women; its indiscriminate use in foods, patent remedies, water, and so on, is unscientific and dangerous.

Johns Hopkins Hospital Bulletin, Baltimore

53: 117-158 (Sept.) 1933

Blood of Normal Men and Women: Erythrocyte Counts, Hemoglobin and Volume of Packed Red Cells of Two Hundred and Twenty-Nine Individuals. M. M. Wintrobe, with technical assistance of J. W. Landsberg, Baltimore.—p. 118.
Recent Knowledge Regarding the Physiology of the Glossopharyngeal Nerve in Man with Analysis of Its Sensory, Motor, Gustatory and Secretory Functions. F. L. Reichert and E. J. Poth, San Francisco.—p. 131.
Rôle of Ventricular Dilatation in the Spread of Infections from Subarachnoid Space into Ventricles. L. B. Flexner, Baltimore.—p. 140.
Locomotion of Rat Lymphocytes in Tissue Cultures. W. H. Lewis, Baltimore.—p. 147.

Journal of Experimental Medicine, New York

58: 253-384 (Sept. 1) 1933

Lymphomatosis, Myelomatosis and Endothelioma of Chickens Caused by a Filtrable Agent: I. Transmission Experiments. J. Furth, New York.—p. 253.
Varying Hemolytic and Constant Combining Capacity of Streptolysins; Influence on Testing for Antistreptolysins. B. E. Hodge and H. F. Swift, New York.—p. 277.
Studies on Uncomplicated Coryza of the Domestic Fowl: I. Isolation of a Bacillus Which Produces a Nasal Discharge. J. B. Nelson, Princeton, N. J.—p. 289.
Id.: II. Relation of the "Bacillary" Coryza to That Produced by Exudate. J. B. Nelson, Princeton, N. J.—p. 297.
*Experimental Epidemiology of Tuberculosis: Effect of a Primary Infection on Contact Tuberculosis in Rabbits. M. B. Lurie, Philadelphia.—p. 305.
Resistance of Rabbits to Tuberculosis After Vaccination with Partially Defatted Tubercle Bacilli. K. C. Smithburn, New York.—p. 329.
Studies on Meningococcus Infection: III. Antigenic Complex of the Meningococcus: A Type-Specific Substance. G. Rake and H. W. Scherp, New York.—p. 341.
Id.: IV. Antigenic Complex of the Meningococcus: Group-Specific Carbohydrate and Protein Fractions. G. Rake and H. W. Scherp, New York.—p. 361.
*Id.: V. Presence of Meningococcus Precipitinogens in Cerebrospinal Fluid. G. Rake, New York.—p. 375.

Epidemiology of Tuberculosis.—Lurie states that 73 per cent of normal rabbits exposed for about one year to cage mates infected with tubercle bacilli of bovine type acquired a respiratory or alimentary tuberculosis that was fatal in 50 per cent, 63.6 per cent developing tuberculosis during the first six months. Of the rabbits vaccinated with tubercle bacilli of human type and exposed in the same cages at the same time, only 36.8 per cent acquired tuberculosis during the first six months. Later this resistance waned, and by the end of the year 60 per cent had developed tuberculosis, of which 38 per cent succumbed. The disease in the vaccinated rabbits was shown to be of exogenous origin by the isolation in pure culture from the same rabbit of the human type bacillus from the primary infection and of the bovine type bacillus from the naturally acquired lesion. The vaccination reduced the incidence, extent and mortality of the disease, affected the route of infection, changed its pathologic character and retarded its progress. The disease acquired by vaccinated rabbits shared many characteristics with the adult type of tuberculosis in man.

Meningococcus Precipitinogens in Cerebrospinal Fluid.—Rake points out that precipitin tests, carried out on the cerebrospinal fluid from cases of meningococcic meningitis with monovalent serums, demonstrate the presence in that fluid of type specific precipitinogens of the meningococcus. Negative results are secured when the spinal fluid is obtained after the commencement of intrathecal serum treatment and also occasionally when the numbers of infecting organisms are small. The reaction offers an easy and rapid method of ascertaining to which type of meningococcus a particular case of meningitis is due and facilitates the immediate use of monovalent therapeutic antimeningococcus serum. Typing by means of the precipitin reaction can be confirmed by agglutination of the strain of organism responsible for the infection, if such a strain is isolated. Confirmation by means of agglutination has been possible in all the author's cases. Spinal fluids from other diseases of the meninges and the central nervous system fail to give any precipitin reaction with the monovalent serums.

Journal of Immunology, Baltimore

25: 121-198 (Aug.) 1933

Merthiolate as Preservative for Biologic Products: II. Production and Preservation of Diphtheria Toxoid. L. C. Morgan, W. A. Jamieson and H. M. Powell, Indianapolis.—p. 121.
Effect of Staphylococcus Bacteriophage Lysin on Resistant Strains of Staphylococci. M. L. Rakieten, New Haven, Conn.—p. 127.
Preparation of Diphtheria Toxoid by Treatment of Toxin with 1 per Cent Formalin and Precipitation with Acetone. A. Wadsworth, J. J. Quigley and Gretchen R. Sickles, Albany, N. Y.—p. 139.
Specific Precipitation Test for Standardization of Type I Antipneumococcus Serum. Rachel Brown, Albany, N. Y.—p. 149.
Blood Grouping Among the "Blackfeet" and "Blood" Tribes of American Indians. G. A. Matson, St. Louis, and H. F. Schrader, Browning, Mont.—p. 155.
Certain Characteristics of Water-Insoluble Protein of Normal as Compared with That of Antipneumococcus Horse Serum. L. D. Felton and Gladys Kauffmann, Boston.—p. 165.
Specificity of Brominated and Iodinated Proteins. M. H. Finkelstein, New York.—p. 179.
Effect of p_H on Heat Inactivation of Tetanolysin. R. Schrek, Nashville, Tenn.—p. 183.

Medical Annals of District of Columbia, Washington

2: 177-196 (Aug.) 1933

The High Cost of Standardization. F. A. Fenning, Washington.—p. 177.
The Sinuses as Foci of Infection. W. H. Jenkins, Washington.—p. 179.
Urinary Volume and Specific Gravity as Indices of Kidney Function. H. H. Leffler, Washington.—p. 182.
Gastro-Intestinal Symptom Complex of Mesenteric Arteriosclerosis. M. W. Perry, Washington.—p. 187.
Rational Surgical Approach in Pelvic Inflammations. W. J. Cusack, Washington.—p. 190.

Medical Journal and Record, New York

138: 145-180 (Sept. 6) 1933

Pruritus Ani. A. Bassler and R. J. Connors, New York.—p. 145.
Insulin Therapy in Certain Disorders of Nutrition: Follow-Up Report of Thirty-Five Patients Treated During the Past Two Years. C. W. Lueders, Philadelphia.—p. 146.
Correcting Errors in Diet. V. E. Levine, Omaha.—p. 149.
Bacteriostatic Action of Mallophene in Vitro. P. A. Tetrault, Lafayette, Ind.—p. 151.
Bacteriophage in Peritonitis. S. Freedman, New York.—p. 154.

Military Surgeon, Washington, D. C.

73: 61-116 (Aug.) 1933

Some Etiologic Factors of Acute Appendicitis. A. Egdahl.—p. 61.
Hemochromatosis, a Possible Danger of Copper Therapy. J. R. Darnall. —p. 70.
*Value of Intravenous Vaccine Therapy in Arthritis. H. P. Marvin. —p. 74.
Continuous Baths for the Gravely Wounded. M. Setz; translated by G. M. Blech.—p. 79.
Tribulations of a Medical Department Private in the World War. T. V. Symanski.—p. 83.

Vaccine Therapy and Arthritis.—Marvin used vaccine therapy in only thirty-five patients, although he has treated more than 125 cases of arthritis. His aim has been to select moderately severe to severe cases of acute and chronic infectious arthritis; that is, those patients who had been treated for a reasonable period with other forms of treatment and had shown little or no improvement and similar cases in which improvement was expected slowly without vaccine. Although his series of cases is small, the author feels that intravenous vaccine is most beneficial in the treatment of both the acute and chronic infectious types of arthritis. He realizes that from 75 to 80 per cent of all arthritides become sufficiently improved under ordinary types of therapy for the patients to resume their occupations and carry on their normal everyday life. Intravenous streptococcus vaccine is an important addition to other forms of treatment, hastening the recovery in many cases and materially helping many of the remaining 20 or 25 per cent. The author has given weekly intravenous injections of Cecil's stock Streptococcus viridans cultures in a vaccine, diluted to 125 million killed bacteria per cubic centimeter. His results have been such that he hopes to use this treatment, in addition to other forms of therapy, in all his cases of infectious arthritis in the future. He believes that this treatment will be universally used in the near future and will become one of the standard therapeutic measures in the treatment of most cases of infectious arthritis.

New York State Journal of Medicine, New York

33: 907-974 (Aug. 1) 1933

Diverticulosis of Alimentary and Urinary Tracts. E. Beer, New York. —p. 907.
The Oecos, the Demos and Medicine. I. Galdston, New York.—p. 915.
Fibroids of the Uterus, Their Recognition and Treatment. R. T. Frank, New York.—p. 919.
*Treatment of Hepatic Cirrhosis with Insulin: Preliminary Report with Case Histories. J. McCabe and J. F. Hart, New York.—p. 924.
Pediatric Diagnosis of Orthopedic Conditions. A. Whitman, New York. —p. 930.
The Ontario County Plan for the Medical Care of Indigents. H. J. Knickerbocker, Geneva.—p. 934.
Hydrogen Ion Concentration, Its Elementary Principles. G. Milot, New York.—p. 937.
The Heart in Pneumonia. L. H. Sigler, Brooklyn.—p. 941.
Differential Diagnosis in Recurring Attacks of Jaundice from Common Duct Stone and Pancreatitis, with Reference to Bile Sand. R. F. Carter, New York.—p. 944.
Gas Bacillus Infection Complicating Appendicitis. C. A. Traver, Albany. —p. 946.

Hepatic Cirrhosis and Insulin.—McCabe and Hart report the results obtained in five patients suffering from hepatic cirrhosis with ascites who were put on a high carbohydrate diet and as much insulin as they could take comfortably. One of the patients has remained on the high carbohydrate diet through his own choice, yet five years has passed without a return of the ascites. Another patient responded so quickly to the treatment that the authors feel that the endogenous toxin was benign. In another patient there was a definite alcoholic history for thirty years. After a year and a half of treatment the patient stated that he felt strong and was anxious to resume work. About two years after the beginning of treatment all laboratory tests were normal. Examination showed that the patient was in excellent condition without ascites, and that 168 days had elapsed since the last tapping. In the fourth patient, one with definite syphilitic cirrhosis, the authors feel that the arsenic was detrimental. This was the only patient in whom insulin caused shock. On the last examination the patient was emaciated and was being tapped about every two weeks. In the last patient the entrance diagnosis of hepatitis or subacute yellow atrophy with cholemia was justified from the history. The use of intravenous dextrose and insulin, although in limited amounts, seems to have been specific. The patient improved and his jaundice faded. Decompensation, however, set in about six weeks after the initial symptoms of the disease. The authors do not offer this treatment as a cure of hepatic cirrhosis nor do they offer it as a permanent cure of the ascites, because they realize that longer periods of observation and postmortem studies must be made. What they do believe is that it will reestablish compensation in some cases and lower the transudation in others so that the intervals between tapping may be extended.

Philippine Journal of Science, Manila

51: 281-408 (July) 1933

Contributions to Study of Internal Secreting Glands in Filipinos, I: Topography and Size of the Thymus. J. C. Nañagas, Manila.—p. 281.
Physiology of Reproduction in the Rabbit: Age of Sexual Maturity, Breeding Season, Duration of Normal Pregnancy and Ovulation. M. Manresa, Los Baños.—p. 323.
Philippine Kinds of Subspecies Callirrhipis. F. van Emden, Dresden, Germany.—p. 331.
Chironomidae from Japan (Diptera): II. Marine Tanytarsus. M. Tokunaga, Kyoto, Japan.—p. 357.
New or Little Known Tipulidae from Eastern Asia (Diptera), XIII. C. P. Alexander, Amherst, Mass.—p. 369.

Public Health Reports, Washington, D. C.

48: 955-992 (Aug. 11) 1933

Zinc in Relation to General and Industrial Hygiene. C. K. Drinker and L. T. Fairhall.—p. 955.
Size Frequency of Industrial Dusts. J. J. Bloomfield.—p. 961.
*Relation of Arsenoxide Content to Toxicity of Fresh and Old Samples of Arsphenamine: New Chemical Tests on Arsphenamines. S. M. Rosenthal and T. F. Probey.—p. 969.

Toxicity of Arsphenamine.—Rosenthal and Probey determined the arsenoxide content and toxicity of thirty-five recent samples of arsphenamine. A correlation sufficiently close was obtained to attribute the enhanced toxicity of certain products chiefly to arsenoxide. Eleven samples of arsphenamine from 3 to 10 years of age, originally of low toxicity, were studied. With the exception of one product, an increase of toxicity roughly proportionate to the age was found. Sufficient arsenoxide was present to account for the increases in toxicity. The authors describe a color reaction between neoarsphenamine and lead acetate which detects chemical differences between various products and a simple test (the tungstic acid color test) to distinguish between arsphenamine, neoarsphenamine and sulpharsphenamine.

Tennessee State Medical Assn. Journal, Nashville

26: 321-368 (Aug.) 1933

Functional or Preclinical Stage of Essential Hypertension. G. E. Brown, Rochester, Minn.—p. 321.
Rôle of Hematopoietic Hormone (Addisin) in Diseases of the Blood. R. S. Morris, Cincinnati.—p. 326.
Primary Carcinoma of the Ureter: Case Report. T. R. Barry, Knoxville.—p. 334.
Studies on Milk in Relation to the Goiter Problem. W. Weston, Columbia, S. C.—p. 340.
Bronchial Asthma: Present Status of Its Diagnosis, Treatment and Control. H. Spitz, Nashville.—p. 348.
The Problem Child, as Concerns Especially Mental Hygiene. W. E. Van Order, Chattanooga.—p. 357.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Experimental Pathology, London

14: 207-296 (Aug.) 1933

Cytologic Changes in Liver in Rift Valley Fever, with Especial Reference to Nuclear Inclusions. G. M. Findlay.—p. 207.
Variation in Agglutination of Stock Cultures of Meningococci. B. G. Maegraith.—p. 219.
Rough and Smooth Variants in Stock Cultures of Meningococci. B. G. Maegraith.—p. 227.
*Experimental Observations on Toxic Effects of Staphylococcic Filtrates Introduced Enterally in Laboratory Animals. G. R. Borthwick.—p. 236.
Size of Virus of Fowl Plague Estimated by Method of Ultrafiltration Analysis. W. J. Elford and C. Todd.—p. 240.
Gonadotropic Hormones (ρ-Factors): V. Effect of Large Doses on Subsequent Fertility. P. G. Marshall.—p. 246.
Infective Agent in Tumor Filtrates: Further Investigation by Means of Antiserums to Normal Tissues. W. E. Gye and W. J. Purdy.—p. 250.
Heterotransfer of Two Filtrable Tumors: Investigation by Means of Immune Serums. W. J. Purdy.—p. 260.
Observations on Developmental Forms of Psittacosis Virus. S. P. Bedson.—p. 267.
Reversibility of Neutral Salt Action on Complement. J. Gordon and F. C. Thompson.—p. 277.
Experimental Hypertension and Arterial Lesions in Rabbit. M. Kremer, S. Wright and R. W. Scarff.—p. 281.
Study of Enzymes of Agalactia Virus. Antoinette Pirie and Barbara Elizabeth Holmes.—p. 290.

Toxic Effects of Staphylococcus Filtrates.—Borthwick records his experiments which illustrate how rabbits and guinea-pigs may be protected normally against staphylococcus toxin when it is introduced directly into the alimentary tract. The results suggest that the inactivating effect of the acid contents of the stomach is an essential factor in this protection and explain the failure of previous workers to reproduce experimentally in these animals the condition of "food poisoning" by staphylococcus toxin as observed in the human subject. The sensitiveness of this toxin to slightly acid or alkaline reactions is of special interest. On the other hand, the local and general toxic effects produced by staphylococcus filtrates introduced into the stomach of guinea-pigs after neutralization of the contents afford an interesting demonstration that the toxins of staphylococci growing in certain articles of food may produce serious poisoning. It seems likely also that the hydrogen ion concentration of the stomach contents is a factor that determines the occurrence of such poisoning in the human subject, and this may explain the variable results observed by Jordan and Hall when volunteers were fed with milk containing staphylococcus toxin. The experiments indicate how, under certain conditions, small laboratory animals can be utilized for further inquiry into this form of food poisoning, and may have a more general application in the study of the effects of other bacterial toxins on the alimentary tract. The author observed that, when staphylococcus toxin is added to the gastric contents in vitro a slightly acid (p_H 6.8) or a slightly alkaline (p_H 7.8) reaction impairs its activity, whereas no inactivation occurs at p_H 7.3. Symptoms of poisoning can be produced only occasionally in guinea-pigs and rabbits when toxin is introduced directly into the stomach. Uniformly positive results are obtained in experiments in which the reaction of the stomach is adjusted to p_H 7.3 at the time of introduction of the toxin. The animals die within five days, and postmortem examinations show signs of acute gastro-enteritis and marked congestion of the internal organs, associated with hemorrhage in the stomach and kidneys. Symptoms of poisoning can be produced by intrarectal inoculation of the toxin when the rectum has been irrigated with saline solution and the reaction adjusted to p_H 7.3. Postmortem features are similar to those obtained after the introduction of toxin into the stomach. This method is not so effective as inoculation into the stomach.

British Medical Journal, London

2: 275-320 (Aug. 12) 1933

National Health Policy: Critical Survey. J. L. Brownlie.—p. 275.
Present Position of Serology in Relation to Pathogenic Cocci. H. J. Parish.—p. 277.
Investigation on Pharmacologic Action of Some New Substitutes for Morphine and Heroin. G. N. Myers.—p. 282.
Treatment of Acute Otitis Media in Acute Febrile Conditions. T. O. Graham.—p. 287.

Journal of Tropical Medicine and Hygiene, London

36: 233-248 (Aug. 15) 1933

*Substitute for Wassermann Test for Up-Country Work, with Observations on Halarsol in Yaws. K. W. Todd.—p. 233.
Symptomatology of Yaws in Liberia: Details of Statistical Method Used in This Study. G. W. Harley.—p. 235.

Meinicke Turbidity Reaction.—Todd presents a simple substitute for the Meinicke turbidity reaction, in which to 3 drops of serum he adds 1 cc. of Meinicke's turbidity reagent after diluting it at 50 C. with ten times its volume of a 3 per cent solution of sodium chloride and a 0.01 per cent solution of sodium carbonate. He compares this with the control tube, to which has been added 1 drop of formaldehyde. A double positive reaction after five to ten minutes is turbid; after three to six hours it is clear, and after eighteen to thirty hours it is clear also. A weak positive reaction after five to ten minutes equals the control; after three to six hours it is turbid, and after eighteen to thirty hours it is clear. A doubtful reaction is doubtful after five to ten minutes, equals the control after three to six hours and is clearer than the control after eighteen to thirty hours. A negative reaction is doubtful after five to ten minutes and after three to six hours, and equals the control after eighteen to thirty hours.

Lancet, London

2: 335-392 (Aug. 12) 1933

Hematemesis. M. E. Shaw.—p. 335.
Current Theories of Etiology of Pellagra. Harriette Chick.—p. 341.
*Adrenotropic Hormone of Anterior Pituitary Lobe. J. B. Collip, Evelyn M. Anderson and D. L. Thomson.—p. 347.
Technic of Suprapubic Prostatectomy. W. E. M. Mitchell.—p. 348.
Psoriasis and Rheumatism: Comparison. Elizabeth Hunt.—p. 351.
*Dinitro-o-Cresol as a Stimulator of Metabolism. E. C. Dodds and W. J. Pope.—p. 352.

Suprarenotropic Hormone.—Collip and his associates present proof that the suprarenotropic principle as obtained in refined extracts is distinct from the thyrotropic principle. The hypophysectomized rat is a satisfactory test animal for detecting the presence of the suprarenotropic hormone. They report a series of tests on 125 rats which were completely hypophysectomized: (1) loss of weight following hypophysectomy, (2) complete failure to grow, (3) atrophy of the left suprarenal removed for control examination before starting the injections and (4) absence of any fragments of the pituitary by careful inspection at the time of necropsy. In some of the animals the authors have had further evidence of the completeness of the hypophysectomy by determining the basal metabolic rates and by serial sections of the sella turcica. The animals used were hypophysectomized from eleven to 148 days previously. Before starting the injections, the left suprarenal was removed, weighed and sectioned for histologic examination. Removal of one suprarenal from the hypophysectomized rat is not followed by a compensatory hypertrophy of the other suprarenal, such as occurs in the normal animal. In six control animals from which the left suprarenal was removed from eight to twenty-three days after hypophysectomy and the right suprarenal one week later, the right suprarenal in each case weighed either the same as or less than the left suprarenal of the same animal and all showed marked atrophy of the cortex by histologic examination. In another group of seven hypophysectomized animals receiving Witte's peptone (20 mg. daily) or extracts of anterior pituitary free from the suprarenotropic hormone, there was no evidence of any repair of the atrophy that is seen in the untreated hypophysectomized rat. Of forty different extracts of the anterior pituitary lobe that have been tested, thirty-four were found to contain the suprarenotropic hormone. Eight of these extracts show a fairly high degree of potency, causing an increase of from 50 to 300 per cent in the weight of the right suprarenal over that of the left suprarenal, which had been removed previously as a control. Two of the extracts that have been assayed brought about repair of the suprarenal in the hypophysectomized rat when 0.025 cc. (0.125 mg. of total solids) was administered twice a day for one week. Four extracts with a high degree of potency showed no trace of the thyrotropic hormone. These extracts had no effect on the growth of the body. Extracts boiled for thirty minutes still showed suprarenotropic activity. Active extracts were found to be ineffective when administered orally. The

authors obtained the purest extracts of the suprarenotropic principle from a fine flocculence, which has separated out on concentrating a 75 per cent acetone-soluble fraction at from p_H 5 to 6. The latter has been obtained as a by-product in the purification of the thyrotropic fraction in the filtrate of the original aqueous extract after the tricalcium phosphate adsorption treatment to remove growth hormone, as in the Q process.

Dinitro-Orthocresol as Stimulator of Metabolism.—Dodds and Pope, in investigating the pharmacologic action of the nitrophenols as stimulators of metabolism, observed the oxygen consumption of guinea-pigs by a modified Krogh technic and, when a steady figure had been obtained for the basal rate, the substance to be tested was injected, or alternatively administered by mouth, and the effect on both temperature and oxygen consumption was studied. Of the many compounds investigated, dinitro-orthocresol appears to be the most promising. For example, the basal oxygen consumption rate of the guinea-pig, measured in cubic centimeters per gram weight of guinea-pig per minute, was 0.0135 and the temperature was 97 F. Dinitro-orthocresol (8 mg.) dissolved in sesame oil was administered by subcutaneous injection. One hour afterward the oxygen consumption rose to 0.0376 cc. per minute and the temperature to 100.9 F. Four hours later the temperature had reached 102.8 F. Similar experiments with 2:4-dinitrophenol produced a rise of about one third the magnitude. Observations on the toxicity of these two compounds indicated that they are of the same order. Both compounds are active when administered by mouth. The authors believe that the dinitro-orthocresol compound is more suitable for clinical experimentation, since about one third of the amount is required to produce the same effect as with the dinitrophenol. The authors are now investigating the clinical application of these compounds.

Quarterly Journal of Medicine, Oxford

2: 157-280 (April) 1933

Uveoparotid Tuberculosis (Febris Uveoparotidea of Heerfordt). H. G. Garland and J. G. Thomson.—p. 157.
Value of Artificial Pneumothorax in Pulmonary Tuberculosis. C. Shaw. —p. 179.
*Comparison Between the Bendien Chemical Test and Sedimentation Rate Test in the Prognosis of Tuberculosis. J. Fine and D. M. Dunlop. —p. 201.
Pathologic Changes in Carotid Sinus and Their Relation to Hypertension. C. A. Keele.—p. 213.
Electrocardiogram in Syphilis: An Examination of Two Hundred and Thirty-Two Cases of Syphilis and One Hundred and Fifty-Six Controls. E. N. Chamberlain and J. H. Follows.—p. 221.
Renal Dwarfism: Report of Twenty Cases, with Especial Reference to Its Association with Certain Dilatations of Urinary Tract. A. Ellis and H. Evans.—p. 231.
*Precipitin Reactions in the Blood of Rheumatic Patients Following Acute Throat Infections. B. Schlesinger and A. G. Signy.—p. 255.
*Diabetic Lipemia: Rôle of the Fats in Diabetes Mellitus, with Description of the Hemolipokrit Method for Estimation of Fat in the Blood Serum. D. H. Collins.—p. 267.

Bendien and Sedimentation Tests in Prognosis of Tuberculosis.—Fine and Dunlop carried out 151 Bendien tests, most of them simultaneously with a sedimentation test in thirty-six cases of pulmonary tuberculosis. In most of them the blood was examined from five to ten times. The results reveal a high degree of correspondence between (1) the Bendien and the sedimentation tests, (2) the clinical course and the prognosis and the prognostic tests. While there is no reason to believe the Bendien test either more or less accurate than the sedimentation rate, it has the following advantages: 1. It is a serum test, and therefore more convenient. 2. It does not show so readily minor fluctuations, and therefore its variations are more significant. It has the disadvantage of requiring two very accurately prepared reagents. In the preparation of the acetic acid solution an error of tenth normal $\times (\pm 0.005)$ causes a displacement in the result by one tube. Sodium vanadate varies in the amount of water of crystallization, and the tenth normal solution can therefore be safely prepared only by obtaining the weight of the anhydrous salt. The Bendien chemical test is a useful prognostic test in pulmonary tuberculosis and probably in other conditions in which the sedimentation rate has been found useful. It may safely be adopted as an alternative prognostic test when the sedimentation rate is impracticable.

Precipitin Reactions in Rheumatic Patients.—Schlesinger and Signy state that streptococcus precipitins can be demonstrated in the blood of rheumatic patients following acute streptococcic throat infections. The group of cases in which the investigations were carried out consists of seventeen rheumatic and four nonrheumatic children. The formation of precipitins is delayed until the second to fourth week from the onset of the nasopharyngeal infection (the end of the silent period), and their appearance in most cases foreshadows a tendency to a relapse of acute rheumatism. The precipitin corresponds to the type of streptococcus responsible for the throat infection, but a certain amount of cross precipitin formation may occur. The formation of precipitin is regarded as one of the manifold reactions that take place in the patient's defense mechanism during the silent period. There is thus time for prophylactic measures if the throat infection has not passed unnoticed. Concentrated acetylsalicylic acid therapy during this period undoubtedly prevents serious relapses in many cases. The technic adopted for the precipitin test was modified so as to make the best use of small amounts of serum. The antigen used was that described by Collis. It consists of a filtered saline emulsion of ground streptococci. Standard dilutions of the patients' serum to be tested were made. In the early part of the work a 1:10 dilution was used, but later it was found that a 1:5 dilution gave better results. One cubic centimeter of this serum was put up against 1 cc. of falling dilutions of the antigen: 1:5, 1:10, 1:20 and 1:40. Dilutions were at first made both with physiologic solution of sodium chloride and with a 0.2 per cent solution of sodium chloride, but, as no differences were noted, physiologic solution of sodium chloride only was used in the later tests. The results were usually definite after an incubation of twelve hours in a water bath kept at 37 C. A control tube of serum and saline solution was always used and occasionally showed turbidity after incubation. When this occurred, the serum was discarded as unsuitable for the test. The positive reactions were never heavy precipitates. A flocculent deposit with a clouding of the supernatant fluid was taken to denote a strong positive reaction, while a mere clouding with or without a slight deposit in one or two tubes was read as a weak positive reaction, provided always the control tube remained clear. Reactions were more frequently observed in the tubes containing the more concentrated antigen and never showed a zone phenomenon.

Diabetic Lipemia.—Collins recommends, describes and discusses Rückert's hemolipokrit method for the volumetric estimation of fat in blood serum in diabetic lipemia. He records the result of serum fat estimations on 103 diabetic and fifty-five nondiabetic blood samples. Increase of the serum fats is associated with the presence of glycosuria and acetonuria and with the clinically severer cases of diabetes in particular. No clear relationship could be established between the serum fat and the blood sugar level. There was no relation between the serum fat and the weight of the body of the patient. The author discusses a case of diabetes with hyperthyroidism and suggests the value of a serum fat determination as an aid to diagnosis. He expresses the opinion that the lipemia of diabetes is solely dependent on the inhibition of carbohydrate metabolism and that the increased amount of fat in the blood is evidence of a mobilization of fat in response to the calorific requirements of the body.

Chinese Medical Journal, Shanghai

47: 637-734 (July) 1933

Some Problems in Pathology of Nontuberculous Infections of Urinary Tract, with Consideration of Some Modern Methods of Investigation and Treatment. J. Gray.—p. 637.
Chinese Infants and Children: Study of Infant and Child Mortality, Size of Family and Sex Ratio, in Two Thousand Five Hundred Cases. P. L. Fan.—p. 652.
Electrocardiographic Changes in Cholera. C. W. Bien and C. L. Tung. —p. 662.
Few Cases of Septicemia. F. F. Tang.—p. 666.
Epignathous Teratoma: Note. I. C. Wen.—p. 674.
Practical Survey of Rural Health. C. C. Ch'en.—p. 680.
Prevalence of Malaria in Mausolean District in Nanking: Preliminary Survey. W. L. Chiang and C. S. Yang.—p. 689.
The Mission Hospitals in China. J. L. Maxwell.—p. 694.
Rare Case of Twin Pregnancy. S. W. Lee.—p. 697.

Presse Médicale, Paris

41: 1537-1560 (Oct. 7) 1933

Evolution of Nervous Arthropathies. T. Alajouanine and G. Mauric.—p. 1537.
Scoliotic Paraplegia. André-Thomas, E. Sorrel and Mme. Sorrel-Déjerine.—p. 1542.
Epitheliomas of Eyelids. Simone Laborde.—p. 1548.
*Spondylolysis: Its Causes and Consequences. C. Roederer and P. Glorieux.—p. 1550.
Roentgenographic Observation of Movements of Folds of Mucosa of Large Intestine. S. Kadrnka and R. Audeoud.—p. 1553.
*Rôle of Normal and Supernumerary Interlobar Fissures in Development of Parenchymatous Forms of Pulmonary Tuberculosis. J. Stephani and R. Kirsch.—p. 1558.

Spondylolysis: Its Causes and Consequences.—Roederer and Glorieux define spondylolysis as a unilateral or bilateral interruption in the continuity of the posterior vertebral arc passing between the superior and inferior articular processes. While the lesion may sometimes be demonstrated roentgenographically in front exposures and, rarely, in profile exposures, it is always demonstrable in three-quarter exposures although several exposures may be required. It may present itself as a real interruption of continuity, but more often it is merely an unhooking or lack of alinement in the trabeculation. In the authors' opinion spondylolysis may often be congenital, but it is also frequently produced by trauma. In traumatic spondylolysis the mechanism is as follows: At first there is a hyperextension of the spine with the center of the intervertebral disk serving as the axis; the extension continues with the inferior articular process of the fifth lumbar vertebra and the superior process of the first sacral vertebra, for example, serving as axis; finally the articular processes touch, blocking extension, so that, if the movement is accentuated, the isthmus of the fifth lumbar vertebra (the point of least resistance) breaks. The authors have found these lesions in 40 per cent of patients complaining of incapacity for effort after a trauma with hyperextension. Spondylolysis plays an important part in the production of spondylolisthesis and precedes or accompanies it in practically all cases. A spondylolysis, whether congenital or acquired, may give rise to pains of static origin. The fibrous tissue, which joins the fragments forcibly subjected to violent traction, may be stretched on one or both sides and permit a slipping with or without rotation of the entire upper part of the spinal column. The permanent muscular effort needed to diminish this abnormal mobility and the contraction which develops may cause pain. Certain severe scolioses starting in the inferior lumbar region result from a spondylolysis with a slight slipping which has been corrected by a rotation of the spinal column. The authors have seen cases of slight scoliosis in young persons with a bilateral spondylolysis, having relaxed on one side; some of them could be reduced by simple dorsal decubitus. The deformity can be discovered by roentgenography of the patient in an upright position with a weight on his shoulders.

Rôle of Interlobar Fissures in Development of Tuberculosis.—Stephani and Kirsch state that interlobar fissures play an important part in the formation of tuberculous foci in the lung. Owing to the wide variety in the forms of fissures and the frequent existence of supernumerary fissures, no region of the pulmonary parenchyma is far removed from a fissure. From a study of 2,000 roentgenograms of the lungs often supplemented by transverse exposures, the authors conclude that there are few apparently isolated foci (whether early infiltrations or small metastatic foci) which are not found to be juxtafissural when studied in anterior and transverse roentgenograms. For a focus to appear isolated in the parenchyma when it is actually juxtafissural, it suffices that the segment of the fissure on which it is located is not contained in the plane of the ray that strikes it; this is evidently frequent. From the clinical standpoint, interlobar propagation is important in the genesis of foci of condensation of the parenchyma. This explains their sudden formation, their ubiquity and the fact that they invade, from the start, the whole of an apparently healthy lobe. Many parenchymatous foci develop rapidly because their formation was prepared by interlobar infection, and roentgenograms taken at various angles will show that this mechanism is perhaps more frequent than is recognized.

Archivio di Patologia e Clinica Medica, Bologna

13: 113-220 (Sept.) 1933

*Artificial Pneumothorax in Treatment of Pulmonary Echinococcosis. G. Scaglia.—p. 126.
Occlusion of Inferior Vena Cava. E. Samek.—p. 170.

Artificial Pneumothorax in Treatment of Pulmonary Echinococcosis.—Scaglia states that the primary necessity in treating echinococcosis of the lung is to determine the site of the cysts in the respiratory parenchyma and to exclude from treatment the parapleural cysts which the pneumothorax might break into the pleural cavity at their point of least resistance. Positive endopleural pressure can give more rapid and permanent effects than negative pressure; it avoids the formation of pneumocysts and of suppurative complications, because it determines a rapid collapse of the residual sac and prevents the entrance of the respiratory air column and the germs that it conveys. The pneumothoracic hydatid sac resembles in its general traits the spontaneous sac. Partial pleural adhesions do not constitute an absolute contraindication, because they may be often overcome or they may allow the formation of an efficient pneumothorax. Artificial pneumothorax is inefficacious if the membrane of the cysts is thickened, sclerotic and infiltrated with lime. If artificial pneumothorax is unsuccessful, surgical intervention must follow. The author does not believe that secondary bronchogenous echinococcosis of the lungs is capable of unfavorably influencing the application of the collapse therapy in pulmonary echinococcosis.

Actas de la Sociedad de Cirugia de Madrid

2: 127-222 (April-June) 1933. Partial Index

Correction of Coxa Vara by Transposition of Trochanter: Case. T. Rodriguez de Mata.—p. 127.
Causes of Failure in Osteosynthesis and Review of Modern Technics. J. D'Harcourt and M. D'Harcourt.—p. 137.
Transient Total Amaurosis Following Intraspinal Injection of Iodized Poppy-Seed Oil: Case. T. Rodriguez de Mata.—p. 165.
*New Technic for Volumetric Determination of Whole Amount of Blood in Human Body. V. Sanchís Perpiñá.—p. 169.
Congenital Lipoma of Carotid Region: Case. M. González Ralero.—p. 181.
Surgical Therapy in Tuberculosis of Female Genitalia. L. Soler.—p. 187.
Diagnosis and Surgical Therapy of Extramedullary Intradural Tumors. J. Goyanes.—p. 199.

Technic for Determining Amount of Blood in Body.—Sanchís Perpiñá's original technic of determining volumetrically the total quantity of blood in the human body is as follows: One 5 cc. and two 10 cc. syringes are sterilized and dried. The 5 cc. syringe is filled with a 1 per cent solution of congo red to which 0.5 Gm. of sodium salicylate has been added. With one of the other syringes 10 cc. of blood is withdrawn from the vein of the patient's arm, and the 5 cc. of congo red solution is then injected through the same needle. The normal blood thus withdrawn is placed in a 10 cc. test tube graduated in cubic centimeters. After five minutes, 10 cc. of blood is withdrawn from the vein of the other arm with the remaining syringe. This blood is placed in a nongraduated 10 cc. test tube. The two test tubes are centrifugated for one hour and the quantity of corpuscles and serum in the test tube containing the normal blood noted. Then 0.25 cc. of serum of the normal and of the dyed blood respectively are withdrawn with different pipets and placed in two different small tubes. These small tubes are of a special type: The closed end is a cylinder of 0.5 cc. capacity graduated into hundredths of a cubic centimeter, and the open end is conical and has a capacity of 3 cc. To both serums a 2.5 per cent solution of uranium nitrate is added and then each tube is stirred with a different fine glass rod. Both tubes are centrifugated for fifteen minutes. A precipitate is formed in each tube. The negative difference in hundredths of a cubic centimeter between the precipitate in the dyed serum and that in the normal serum, respectively, is the equivalent of the total amount of serum in the body. By previous experiments the author has determined that the negative difference between the height of the precipitate in the tubes with dyed and normal serums represents the following equivalents: 0.02 cc. is equivalent to 5,000 cc. of serum; 0.03 to 4,500; 0.04 to 4,000; 0.05 to 3,500; 0.06 to 3,000; 0.07 to 2,500; 0.08 to 2,000; 0.09 to 1,500 and 0.10 to 1,000. To determine the quantity of corpuscles in the whole blood, the quantity of

corpuscles in the test tube of normal blood is taken as a basis and a proportion is made between the quantity of serum and corpuscles in 10 cc. of normal blood and the quantity of total serum (already determined) and corpuscles (undetermined). For example, the 10 cc. test tube of normal blood of a patient gave, after centrifugation, a volume of 6 cc. of serum and 4 cc. of corpuscles. In the second tubes there was a negative difference of 0.07 between the precipitate of the dyed serum and that of the normal serum. As this negative difference corresponds to 2,500 cc. of serum, the following proportion results: $6:4::2{,}500:x=6:4::2{,}500:1{,}666$. By adding the two large figures representing the total quantities of serum and of corpuscles, respectively, one obtains the number that indicates the total quantity of blood in the human body. For example, in the case mentioned, 2,500 cc. of serum and 1,666 cc. of corpuscles give a total amount of 4,166 cc. of blood. This volumetric method possesses great precision and the author considers it better than the colorimetric methods used for the same purpose.

Archiv für klinische Chirurgie, Berlin

176: 401-620 (Sept. 30) 1933

*Inflammation. A. Bier.—p. 407.
*Results of Atypical Blunt Injuries of Knee Joint. E. Payr.—p. 550.
Teaching Experience of a Surgical Clinician. E. Payr.—p. 559.
Advances in Neurosurgery. F. Sauerbruch.—p. 568.
Puncture and Electrocoagulation of Gasserian Ganglion. Kirschner.—p. 581.

Inflammation.—In an extensive article on inflammation contributed on the occasion of Werner Körte's eightieth birthday, Bier reviews the important landmarks in the history of knowledge of the subject. The author's special contribution to the subject is the application of hyperemia induced by hot air, constriction with elastic bandages or the use of a suction apparatus (Bier's hyperemia). The inflammatory reaction and the accompanying fever are favorable symptoms and are not to be combated. The successful treatment of the extremely painful gonorrheal joint by congestion hyperemia demonstrates the fallacy of the theory that the pain of inflammation is occasioned by hyperemia. The author advocates the use of various irritating agents, especially of foreign blood, to induce therapeutic fever and to stimulate the defense mechanism of the body. The gravest phlegmon can be closed after incision and cauterization with a hot iron. The acute inflammation and the fluids produced by the cautery produce an immunizing effect. Some of the minor practical applications of hyperemia treatment are the preservation of tendons in purulent tenosynovitis by making small incisions into the sheath and the use of a small incision in the treatment of suppurative inflammation of a lactating breast in combination with suction hyperemia. It has become evident that packing of the wound and frequent changes of dressings are injurious. In the treatment of gonorrheal and tuberculous joints, moderate motion has been substituted for total immobilization. The author stresses the value of blood transfusion. It is to be considered more than a replacement therapy, because it is capable of stimulating the hematopoietic as well as the defense mechanisms. For the latter purpose foreign blood is just as valuable. The author refers to the good results obtained by him in the treatment of patients with tuberculous, thyrotoxic and vascular disease with injections of small amounts of foreign blood.

Atypical Blunt Injuries of Knee Joint.—Payr emphasizes the great importance of chronic traumatic synovitis as the result of a blunt injury. He is not concerned here with the "classic" types of injury, such as tears of the meniscus and of the crucial and lateral ligaments, and the splitting off of a piece of cartilage. The injuries under consideration are the bruising and tearing of the synovial lining, of the fibrous capsule and of the fat bodies of the joint. Effusion of blood and local necrosis are the immediate result. These cause irritation of the joint and spasm of the muscles. The latter leads to contracture of the quadriceps group or of the extensor group of muscles. The bruising of the lateral ligaments results, as a rule, in the contracture of the flexors, while injury to the posterior wall of the suprapatellar fat pad leads to a contracture of the extensors. The hypertrophic type of chronic synovitis leads to a shrinking of the fat pads but not unfrequently to a lipoma-like proliferation, "lipoma arborescens traumaticum," characterized by locking of the joint. Too active use of the joint frequently leads to chronic effusion, but the dry shrinking form of synovitis is even worse. Filling of the joint with a solution of procaine hydrochloride-epinephrine and flooding of the hypertonic muscles with a solution of procaine hydrochloride alone proved of value in the treatment. Addition of camphorated phenol is useful in some cases. Particularly good results were obtained with high voltage roentgen therapy as well as with short ray therapy. Careful exercise of muscles with interrupted current, massage, motion and movement of the patella are indicated. The cases that do not respond to treatment require surgical intervention. The author points out that the much favored removal of a meniscus will not cure the jamming by a fat pad, hygroma of the mucous membrane or tears of the extensor muscles. A search for the real offending cause must be made in the absence of typical lesions.

Beiträge zur Klinik der Tuberkulose, Berlin

83: 377-514 (Sept. 23) 1933

Experimental Investigations on Manner of Infection and Pathologic Anatomy of Tuberculosis in Monkeys. Y. Nakada.—p. 377.
Relations Between Tuberculous Primary Infection and Tuberculous Disease During School Age. H. J. Ustvedt.—p. 402.
Pathogenic Requirements of Pulmonary Tuberculosis in Adults. H. Kutschera-Aichbergen and A. Makitra.—p. 405.
*Gastrocardiac Syndrome in Phrenic Exeresis of Left Side. L. Roemheld.—p. 420.
Coagulation Time of Blood in Course of Pulmonary Tuberculosis. I. D. Hadziemmanuil.—p. 428.
Phosphatase of Blood in Tuberculosis of Bones. B. Koldajew and M. Altschuler.—p. 433.
Observations on Differences in Form of Tubercle Bacillus. Bernstein.—p. 437.
Cultivation of Tubercle Bacilli from Exudates of Pleurisy and of Pneumothorax. Naomi Oshima, Rissyun Suzuki and K. Suzuki.—p. 441.
Influence of Tissue Juice of Muscles and of Thyroid on Tubercle Bacilli. H. Feurig.—p. 452.
*Treatment of Pulmonary Tuberculosis with Iron-Copper-Chlorophyll Compound. F. Mattausch.—p. 463.
Alteration Experiments with Basic Mineral Mixture in Chronic Pulmonary Tuberculosis. F. Mattausch.—p. 467.
Investigations on Minute Volume of Heart in Two Cases of Unilateral Artificial Pneumothorax. G. Nylin.—p. 470.
Bilateral Spontaneous Pneumothorax in Silicosis. A. Abraham.—p. 478.
Spontaneous Pneumothorax in Silicosis. A. Hofbauer.—p. 486.
Pathogenesis of Bronchiectases. M. Kartagener.—p. 489.
Determination of Residual Air. A. J. Anthony.—p. 502.
Hospitalization of Patients with Open Pulmonary Tuberculosis Formerly and Now. K. W. Jötten.—p. 511.

Gastrocardiac Syndrome in Phrenic Exeresis.—Roemheld states that, of 143 patients who underwent phrenic exeresis of the left side, seventeen developed the characteristic gastrocardiac syndrome, manifested partly as gastric disturbances and partly as cardiac disorders (tachycardia, extrasystole or anginoid pains). However, these symptoms were only subjective and the chemical and roentgenologic examination of the stomach, as well as the electrocardiographic and roentgenologic examination of the heart, remained negative, if a shifting of the heart toward the right or a turning in case of considerable elevation of the diaphragm are disregarded. The author agrees with Jahnke, who maintains that the symptoms are generally of a temporary nature. He points out that the comparatively low incidence of the gastrocardiac syndrome is probably due to the fact that most of the patients were of the asthenic type, for the condition is found primarily and in its severest form in pyknic persons. Other factors that play a part in the pathogenesis of the gastrocardiac syndrome are neurasthenia and vasomotor irritability, which become manifest in sweating erythrodermia and dermographism. The author concludes from these observations that phrenic exeresis of the left side may be done without danger in asthenic persons with normal circulatory and digestive organs. However, caution is necessary in persons of the pyknic type, or in patients having cardiac and gastric disturbances or a weak sympathetic nervous system. The physician should realize that in these cases exeresis on the left side may cause severe disturbances, and he should not resort to it unless other therapeutic measures, particularly pneumothorax, have failed.

Treatment of Tuberculosis with Iron-Copper-Chlorophyll Compound.—Mattausch employed on oil-soluble copper-chlorophyll compound activated by small quantities of iron, administered in keratin capsules, in the treatment of 218

patients with mild or average chronic pulmonary tuberculosis. Each capsule contains 0.1 mg. of copper, 1 mg. of iron and 18 mg. of chlorophyll, all constituents being in the lipoid-soluble form. The daily dosage is as a rule three capsules, one after each of the principal meals. This medication is continued for from ten to twelve weeks, interrupted for from eight to twelve weeks, and resumed again for from two to three months. In some cases a second and third period of medication may follow after the usual interruptions. A noticeable change in the reaction of the organism, that is, a reduction of the increased sensitivity and a change toward an increased resistance, a desensibilization, became noticeable in approximately 70 per cent of the cases after the first few weeks of treatment. This alteration is characterized by a decrease or cessation of the toxic processes, by a change from the neutrophilic to the lymphocytic tendency of the white blood picture usually by way of a monocytic intermediate phase, by a decrease in an eventually existing acceleration of the sedimentation speed of the erythrocytes, by a gradual disappearance of the increased metabolic rate and by an increase in the alkali reserve of the organism, when during the stage of increased irritability a shifting toward acidity has taken place. It may be expected that all these changes in reaction are accompanied by changes in the sympathetic nervous system, from the sympathicotonic to the parasympathicotonic. The patients feel better, new focal infiltrative processes begin to disappear, the erythrocyte and hemoglobin values increase, and the patients gain weight.

Deutsche medizinische Wochenschrift, Leipzig

59: 1489-1522 (Sept. 29) 1933

Heredity and Tumor Formation. B. Fischer-Wasels.—p. 1489.
Chemotherapy of Carcinomas. O. Schürch.—p. 1494.
*Tumor Destruction by Ultrashort Waves. T. Reiter.—p. 1497.
Campaign Against Cancer in National Socialistic State. F. Grüneisen. —p. 1498.
Campaign Against Cancer in Fascist Italy. G. A. Chiurco.—p. 1499.
Statistics on Cancer in Switzerland. F. Grüneisen.—p. 1502.
Ego and Environment in Illness. V. von Weizsäcker.—p. 1503.
Subserous Cystectomy and Management of Cystic Duct. M. Kemal.—p. 1505.
*Paradoxical Gonadotherapy. E. Klar.—p. 1507.
Fighting Inflammation in Oral and Pharyngeal Cavity. J. Berberich. —p. 1508.
Psychosomatic Treatment of Asthma. P. Engelen.—p. 1508.
Treatment of Dysmenorrhea. W. Benthin.—p. 1509.

Tumor Destruction by Ultrashort Waves.—Reiter shows that the ultrashort waves capable of destroying tumors are those of wavelengths between 3 and 4 meters. Metabolic tests on tumor cells following exposure to ultrashort waves disclosed that the metabolism is inhibited. Comparative tests on tumors treated with roentgen rays revealed that enormous doses of roentgen rays are required to produce the effects given by ultrashort waves. The author thinks that the inhibition of the metabolic processes effected by the ultrashort waves is alone sufficient to explain the destructive action on tumor cells, but whether it is the only cause or whether the rays produce still other impairments cannot be decided on the basis of the studies carried on thus far. He expresses the opinion that the effects produced by the ultrashort waves hold promise that this therapy may prove helpful in the treatment of malignant tumors in human beings.

Paradoxical Gonadotherapy.—Klar points out that, since the researches of Pulay, Laqueur, Petterson and others, the theory of the paradoxical gonadotherapy has been almost universally accepted. Starting from the fact that both hormones are present in the male and female organisms in different quantitative ratios, an attempt has been made to test the influence of these hormones in their reciprocal proportion. It was found that the female sex hormone exerts a noticeable influence on the appendages of the skin in both males and females. Whether this action of the female hormone is a direct one or whether it exerts its influence by stimulating the formation of testicular hormone has not been proved as yet. The author reports the history of a man, aged 58, who as the result of an endocrine disorder lost all hair of the head, beard, eyebrows, axilla and pubic region. It was decided to try treatment with ovarian hormone. Every second day the patient was given an injection of 1 cc. (50 mouse units) of the hormone. The treatment was continued for four and one-half weeks until a total of 17 cc. of the hormone had been administered. After the fourth injection the beard started to grow. Hair appeared on the head a little later, but, compared to the beard, it was rather scanty and of irregular, somewhat focal distribution. Simultaneously with the hair of the head, the eyebrows grew again. Their growth started on the external portion, but the hair of the median third had not yet appeared when hormone injections were discontinued. Axillar and pubic hair did not grow again. The author points out that this one case does not permit general conclusions.

59: 1523-1558 (Oct. 6) 1933

*Modern Methods of Diagnosis and Treatment of Sterility in Women. G. Haselhorst.—p. 1523.
*Technic of Sterilization in Men. H. Boeminghaus.—p. 1527.
Determination of Families with Hereditary Deficiencies. C. von Leupoldt.—p. 1528.
Psychoses in Cerebral Processes and in Epilepsy. K. Schneider.—p. 1530.
Clinical Experiences on Treatment of Dyspepsias. W. Dubberstein and H. Karp.—p. 1533.
Spontaneous Perforation of Rectum in Lymphogranuloma Inguinale. K. Schulz.—p. 1535.
Utilization of Autodisinfecting Processes in Animal Organism for Practical Therapy. B. Dikomeit.—p. 1535.
Nursling Mortality and Social Status. A. Hofbauer.—p. 1536.
Pupillary Disturbances and Duration of Life. Heine.—p. 1538.

Diagnosis and Treatment of Sterility in Women.—Haselhorst describes observations indicating that the uterus plays an important part in the transportation of spermatozoa and shows how disturbances in this function of the uterus may be a factor in sterility. He discusses the function of the uterine tubes and their disturbances and evaluates such conditions as genital infantilism and hypoplasia, nervous spastic symptoms, incretory disturbances and obstructions. He considers mechanical obstructions of the tubes one of the most frequent causes of sterility. He estimates the diagnostic value of the insufflation of the uterine tubes and of hysterosalpingography and, in discussing the treatment of mechanical obstructions, he points out that insufflation of the tubes may occasionally have some therapeutic value. He thinks that conservative methods should always be tried first and that only after these have failed should surgical interventions be resorted to. Implantation of the tubes gives better prospects for a subsequent pregnancy than does salpingostomy, for in the first case healthy portions of the tube are generally used, whereas in the case of salpingostomy the oviducts are generally diseased. Observations have convinced the author that, in general, surgical treatment of sterility is of little avail.

Technic of Sterilization in Men.—Boeminghaus describes a simple method of sterilization. By fixing the deferent duct subcutaneously, one can lay the spermatic cord free by a small incision into the scrotum (from 0.5 to 1 cm. in length). After that the spermatic cord can be drawn forward and a part of it may be resected or the peripheral end may be knotted. Each procedure interrupts the passage completely, whereas a simple ligation with silk thread does not guarantee the interruption. It is still more advisable to suture the peripheral stump into the skin, while the central stump is allowed to slip back into the scrotum. The procedure is so simple that only from two to three minutes is required for each side. The author asserts that psychic alterations do not follow this form of sterilization.

Klinische Wochenschrift, Berlin

12: 1513-1552 (Sept. 30) 1933

Rôle of Liver in Cholesterol and Phosphatide Metabolism. H. Heinlein. —p. 1513.
Minute Volume of Heart in Various Types of Baths. C. Kroetz and R. Wachter.—p. 1517.
Causal Processes in Attacks of Angina Pectoris. F. Munk.—p. 1520.
Immunizations with Purified Organ Specific Hapten of Brain. H. Rudy. —p. 1521.
Pathogenesis of Experimental, Acute and Erosive Gastritis Following Parenteral Administration of Certain Drugs (Morphine, Pilocarpine, Caffeine). H. Hanke.—p. 1524.
*Sequels of Icterus Neonatorum Gravis. E. Burghard and H. Schleussing.—p. 1526.
*Hyperglobulia After Splenectomy in Hemolytic Icterus. M. Netoušek.—p. 1529.
Significance of Examination of Gastric Contents in Diagnosis of Duodenal Ulcer. G. C. Torri.—p. 1531.
Picture of Dried Gastric Juice. N. Henning and L. Norpoth.—p. 1531.

Reflex Self-Adjustment of Circulation in Aortic Insufficiency. K. Schneyer.—p. 1532.
Action of Light on Chemistry of Cell under Influence of Sensibilizers. J. Wohlgemuth and E. Szörényi.—p. 1533.
Involvement of Central Nervous System in Course of First Vaccination. E. Holzmann.—p. 1534.

Sequels of Icterus Neonatorum Gravis.—Burghard and Schleussing call attention to the important literature on icterus neonatorum gravis, particularly to contributions describing a yellow discoloration of some regions of the brain, and they report a case of their own observation. The child died at the age of 5 months. The icterus had largely disappeared on the eleventh day of life, but after that there developed a somewhat "encephalitic" symptomatology (opisthotonos, dulled senses, profuse perspiration, parkinsonism). The authors assumed changes in the region of the sympathetic centers, particularly in the subthalamus, and the histologic changes found corroborated the symptoms to a considerable extent. They accept the theory expressed by other investigators that a bilious saturation of certain portions of the brain is the cause of these changes, but whether the bilious saturation is preceded by other changes or whether the saturation itself represents the impairment cannot be decided. They conclude that only under exceptional circumstances and only when vital centers of the brain have been spared is there hope for recovery from icterus neonatorum gravis. They think that the fatal outcome is not to be deplored too much when it is considered that irreparable changes in the brain may be expected, which will make a normal development impossible and which after chronic sickliness with paralysis and idiocy will finally end in death.

Hyperglobulia After Splenectomy in Hemolytic Icterus.—Netoušek points out that hyperglobulia as a sequel of splenectomy has been known longest in pernicious anemia but that, because splenectomy is now rarely performed in these cases, the hyperglobulia that follows splenectomy has lost its importance in pernicious anemia and belongs now primarily to the splenogenic anemias. In hemolytic icterus the results of splenectomy are generally favorable, but hyperglobulia may follow the splenectomy. The author reports a case in which the first signs of hyperglobulia appeared six months after splenectomy. Medication with phenylhydrazine counteracted the hyperglobulia and changed it into a hemolytic anemia. The author points out that experiments have proved that hemolyzing toxins may also produce hyperglobulia.

12: 1553-1592 (Oct. 7) 1933

Newer Theories on Functional Disturbances of Hypophysis. J. Bauer.—p. 1553.
*Treatment of Amenorrhea with Large Doses of Ovarian Hormone. C. Kaufmann.—p. 1557.
Influence of Nutrition on Hydrogen Ion Concentration of Bile. H. Bronner.—p. 1562.
Differentiation Between Exophthalmic Goiter and Hyperthyroidism. C. V. Medvei.—p. 1563.
*Temporary Exclusion of Phrenic Nerve by Procaine Hydrochloride with Simultaneous Testing of Respiratory Function. T. Naegeli and A. Heymer.—p. 1565.
Action of High Protein Diet in Nephosis. G. Czoniczer and S. Weber.—p. 1566.
*Quantitative Determination of Indican in Blood Without Comparative Solution. P. Schlierbach.—p. 1569.
Race Hygiene and Clinical Medicine. F. Lenz.—p. 1570.
Determination of Ammonia in Blood. C. Riebeling.—p. 1572.
Remarks on Case of "Hypochloremic Uremia" II. B. W. Ercklentz.—p. 1572.
Course of Infection and Immunity in New-Born and Grown Animals. H. Kroó.—p. 1573.
Serologic Diagnosis of Tuberculosis with Aid of Immunity Reaction of Meinicke. F. E. Haag and Agnes Dane.—p. 1574.
Hereditary Physical Deformities and Law for Prevention of Hereditary Disorders. H. Eckhardt.—p. 1575.

Treatment of Amenorrhea with Ovarian Hormone.—Kaufmann shows that in the absence of ovarian activity it is possible to produce a proliferation of the endometrium by the administration of the follicular hormone, and that if after this the hormone of the corpus luteum is given for a number of days the proliferated uterine mucous membrane is transformed into the secretory phase, so that menstruation sets in. It was found that the doses must be quite large in order to be effective. At first, women suffering from amenorrhea were given daily injections of 10,000 mouse units of the follicular hormone for three weeks, so that the total dosage for one menstruation was about 200,000 mouse units. Later it became possible to administer 50,000 mouse units twice a week with a perfected preparation that allowed the organism to absorb the large quantities of hormones gradually. After the follicular hormone had been administered in sufficient quantities, the hormone of the corpus luteum was given for a period of five days. The total doses varied between 25 and 50 rabbit units. The author found that secondary amenorrhea can be counteracted sometimes with follicular hormone alone, but sometimes both hormones are required. He thinks that in these cases the ovaries are influenced by way of the hypophysis. In women having a hypoplastic uterus, the follicular hormone alone often effects a considerable growth of underdeveloped genitalia. So far it has not been possible to counteract primary amenorrhea permanently in women having genital hypoplasia or normally developed genitalia. However, the fact that proliferation and secretion of the endometrium can be produced artifically justifies the hope that by prolonged treatment cooperation of the endocrine organs may be realized eventually.

Temporary Exclusion of Phrenic Nerve.—Since phrenic exeresis is frequently followed by severe complications, particularly respiratory insufficiency, Naegeli and Heymer recommend temporary exclusion, in the course of which respiratory tests can be made. They induce the temporary exclusion by means of anesthetization with a 1 per cent solution of procaine hydrochloride. The result is paralysis of the respective half of the diaphragm for from three-fourths to two and one-half hours. During this time the diaphragmatic action and position are observed by roentgenoscopy and the respiratory function is tested by the determination of the vital capacity with the dry spirometer and of the duration of the voluntary respiratory pause. If roentgenoscopy discloses a considerable elevation of the diaphragm and if the respiratory tests do not indicate too great a reduction of the respiratory function, it can be concluded with considerable certainty that exeresis will not involve dangers for the patient. However, if the respiratory values become considerably impaired during the temporary exclusion, complications must be expected and, if there is great impairment without considerable diaphragmatic elevation, phrenic exeresis involves great danger and is therefore contraindicated.

Determination of Indican in Blood.—Schlierbach describes a new method for the quantitative determination of indican in the blood serum. The indican content is found with the aid of Pulfrich's step photometer, and the values thus detected may eventually be controlled by means of Lange's electric light colorimeter. The advantage of this test is that it does away with the use of photosensitive comparative solutions.

Münchener medizinische Wochenschrift, Munich

80: 1497-1534 (Sept. 29) 1933

Roentgenokymogram of Renal Pelvis and of Ureters. G. Holland, G. Sack and G. Wüllenweber.—p. 1497.
Development of Acute Appendicitis Following Trauma and in Course of Other Disturbances. O. Hoche.—p. 1499.
*Paralysis of Brachial Plexus Following Prophylactic Injection of Tetanus Serum and of Diphtheria Serum. H. Demme.—p. 1502.
Pathology and Therapy of Syphilitic Aortitis. H. Liebig.—p. 1503.
Economy, Efficacy and Practicability of New Preparations in Treatment of Pernicious Anemia. Martha Frank.—p. 1506.
Auscultatory Diagnosis of Apical Caverns. E. Volhard.—p. 1509.
Must the Physician Be Capable of Determining Penetration of Foreign Body into Eye? L. Heine.—p. 1511.
*New Rapid Pregnancy Reaction. R. Brühl and K. Hollstein.—p. 1512.

Paralysis Following Prophylactic Serum Injection.—Demme reports one case of bilateral shoulder and arm paralysis following prophylactic injection of tetanus antitoxin, and a similar condition that developed after injection of diphtheria antitoxin. He calls attention to other reports in the literature. That paralytic manifestations have developed following injections of various serums militates against the assumption that the antitoxin as such is the injurious factor, and the author is inclined to agree with other investigators who assume that the paralytic manifestations are a form of anaphylactic reaction of the nervous system to the parenteral administration of heterogenous serums. This theory is also borne out by the fact that the neuritic manifestations are nearly always preceded by a typical serum exanthem. It is surprising that, independent of the site of the serum injection (in the reported case in the buttock), the paralysis usually involves the region of the brachial plexus and the muscles of the shoulders and arms.

Whether this is due to a particular affinity or to other factors has not been determined as yet. The prognosis of the paralytic symptoms is favorable, for they gradually disappear again. The author emphasizes that these comparatively rare complications are no contraindication to serotherapy.

New Rapid Pregnancy Reaction.—Brühl and Hollstein employed the rapid pregnancy reaction of Hirsch-Hoffmann on the urines of sixty-nine women, forty-seven of whom were pregnant. The test failed in only two cases, in which the test animals were too old and large (30 Gm.). The authors use virginal mice that are at the beginning of sexual maturity and weigh from 12 to 15 Gm. At least two animals should be used for each test. The urine is injected in three doses of 1.2 cc. each (in the course of twenty-four hours) under the skin of the back. After forty hours the animals are killed, and the ovaries are embedded and sectioned. If the first injection of urine is made in the afternoon, the test is completed in the morning of the second succeeding day. A positive reaction is characterized by the following microscopic changes: (1) follicle cysts with beginning luteinization; (2) corpus luteum cysts; (3) luteinization of the theca of the atretic follicles and of the interstitial tissues, and (4) blood dots in larger numbers.

Wiener klinische Wochenschrift, Vienna

80: 1535-1576 (Oct. 6) 1933

*Indications of Dangers to Fetal Life During Delivery. A. Mayer.—p. 1535.
Leukorrhea and Its Treatment. R. Spiegler.—p. 1536.
Progress in Treatment of Leukorrhea: Trichomonas Colpitis. R. Koelsch and G. Tsutsulopulos.—p. 1538.
Syphilis and Obstetrics: Problems of Obstetrician in Campaign Against Congenital Syphilis. E. Philipp and W. Richter.—p. 1540.
*Relation Between Helminthiasis and Gynecologic Disorders. K. Mahler.—p. 1543.
Therapeutic Results in Sarcoma of Uterus. H. Reichenmiller.—p. 1545.
End of Schultze's Swinging Method in Treatment of Asphyxia Neonatorum. H. Cramer.—p. 1546.
Anesthesia with a Sodium Salt of a Barbituric Acid Derivative. C. Holtermann.—p. 1547.
Anesthesia in Obstetrics in the Home. B. Tausch.—p. 1550.
Effective Campaign Against Cancer. Lönne.—p. 1551.
Cerebral Circulatory Disturbances of an Organic Nature. F. Hiller.—p. 1553.
Practicability of Colorimetric Determination of Blood Sugar According to Crecelius-Seifert. G. Sommerlad.—p. 1557.

Indications of Dangers to Fetal Life.—Mayer discusses two of the signs which indicate that the life of the fetus is in danger: the retardation of the fetal heart tones and the discharge of meconium. According to Sachs, a living child cannot be expected when retardation to a frequency of less than 100 persists for more than forty minutes. The author concedes that this may be true generally but cites a case in which retardation of the fetal heart tones persisted for several hours and a viable infant was finally delivered. He discusses the various factors that may lead to retardation of the fetal heart tones, particularly cerebral pressure and intracranial hemorrhage. In case of increased cerebral pressure he considers the use of the forceps advisable only when it hastens and facilitates delivery. If the use of the forceps requires considerable time and pressure, it may even increase the danger. The author states that most practitioners consider the discharge of meconium a sign of danger and, as a result, often resort prematurely to the use of the forceps. He asserts that greenish amniotic fluid with fine floccules is occasionally observed at the beginning of labor and a viable infant is delivered several hours later. He thinks that the discharge of meconium in the form of a discoloration of the amniotic fluid is by itself of relatively slight importance. It is more dangerous when it concurs with a disturbance of the heart tones or with an infection of the uterus. It cannot be denied that the discharge of fresh clots of meconium is a rather grave sign, but it is difficult to differentiate between freshly discharged meconium and the meconium of gestation, because it is impossible to say how rapidly the amniotic fluid dissolves the meconium, and the absence of clots does not necessarily exclude the fresh discharge of meconium. At any rate the author agrees with Seitz, who maintains that the discharge of meconium alone is no indication for an operative intervention. He reaches the conclusion that it may be extremely difficult to recognize when the life of the fetus is in danger, but he thinks that the danger is generally overestimated and that delivery by forceps is done too often. The result is frequently a severely injured mother and a dead child. An expectant attitude is the more advisable one in many cases.

Helminthiasis and Gynecologic Disorders.—Mahler thinks that infestation with intestinal parasites is not given the necessary consideration in gynecologic disorders. He points out that intestinal parasites may cause such disorders as salpingitis, appendicitis, pelviperitonitis, cholecystitis, abscess of the liver, diffuse peritonitis and necrosis of the pancreas. The behavior of Ascaris, Trichocephalus and Oxyuris makes it understandable that they may lead to such manifestations. Complications following obstetric or gynecologic operations also may be caused by helminths, particularly by ascarides. Nervous symptoms may be caused by helminths; and clubbed fingers, articular swellings and edemas have been observed. The author thinks it probable that some intestinal parasites produce toxins that influence the blood and the nervous system. Moreover, helminthic toxins may act on the endocrine system and thus may involve the gynecologic sphere. The diagnosis of helminthiasis can be based only on the examination of the stools. Eosinophilia cannot always be relied on. The author thinks that helminths should be searched for in refractory abdominal symptoms, for he is convinced that their detection and removal will bring relief in many such cases.

Wiener klinische Wochenschrift, Vienna

46: 1185-1216 (Oct. 6) 1933

Balneologic and Physical Therapy of Chronic Articular Disturbances. E. Freund.—p. 1185.
One Hundred Years of Research on Ganglion Cells. M. de Crinis.—p. 1188.
*Studies on Anemias in Cirrhosis of Liver. K. Fellinger and R. Klima.—p. 1191.
Early Diagnosis of Gastric Carcinoma from Standpoint of General Practitioner. E. Medak.—p. 1194.
*Differential Diagnosis of Aneurysmal Varix of Long Saphenous Vein and of Femoral Hernia. A. Pytel.—p. 1199.
Clinical and Experimental Investigations on Nervous Centers Regulating Metabolism. N. Lolli.—p. 1200.
Surgery of Biliary Tract: Gallstone Ileus, Cholascos. E. Trojan.—p. 1200.
Angina Pectoris. L. Braun.—p. 1202.
Problems of Pulmonary Tuberculosis. R. Wiesner.—p. 1207.
What Rules Apply to the Feeding of the New-Born? R. Wagner.—p. 1207.

Anemias in Cirrhosis of Liver.—Fellinger and Klima studied the hemograms, particularly the behavior of the erythrocytes, in forty-eight patients having cirrhosis of the liver. They found that fourteen patients had a normal or an almost normal hemogram. Anemia was present in thirty patients (twelve had a subnormal and eighteen a supernormal color index). Four patients had polyglobulism. The high incidence of anemia in patients having cirrhosis of the liver becomes still more evident when incipient cirrhosis is excluded and only completely developed cirrhosis is taken into consideration, for of the fourteen patients presenting a normal hemogram eleven had incipient cirrhosis. Thus it may be said that anemia is almost typical in fully developed cirrhosis and that its appearance is practically independent of eventual hemorrhages. Anemia with increased color index predominates, particularly in completely developed cases of cirrhosis, while a normal or reduced color index is generally found in the incipient stages. Moreover, it has been observed that a slight anemia with normal or subnormal color index in the beginning of the cirrhosis became more severe during its later development and that the color index increased. The morphology and the size of the erythrocytes likewise change, and these changes frequently resemble those that occur in pernicious anemia. The leukocytic hemogram shows a slight leukopenia, particularly in uncomplicated cirrhosis. The author discusses the causal connections between cirrhosis and anemia.

Differential Diagnosis of Aneurysm of Long Saphenous Vein and of Femoral Hernia.—Pytel observed three patients presenting an aneurysm of the long saphenous vein in the oval fossa. In all three the condition had been diagnosed elsewhere as femoral hernia. The author points out that Guibal, who studied this problem carefully, came to the conclusion that approximately 50 per cent of the cases of aneurysm of the long saphenous vein in the region of the oval fossa are erroneously diagnosed as femoral hernia. Guibal described the following differentiating symptom: When the tumor of the oval fossa is pressed lightly and, at the same time, the abdominal muscular pressure is exerted in several jerks, a whirring sound is heard, produced by the churning of the fluid in the

vessel, if an aneurysmal varix exists. This phenomenon is absent in case of femoral hernia. The author resorted to this test in the three cases that came under his observation; it enabled him to diagnose all three as aneurysmal varix, and the operation corroborated the diagnosis.

Zentralblatt für Gynäkologie, Leipzig

57: 2353-2400 (Oct. 7) 1933

*Hyperemesis and Hypochloremia. H. Kretzschmar.—p. 2353.
Influence of Age on Course of Delivery in Primiparas. E. Frey.—p. 2359.
*Agranulocytosis-Like Disorder During Puerperium. K. Heim.—p. 2365.
*Myoma Praevium with Placenta Praevia Inserted Thereon. B. Ottow.—p. 2370.
Ascites or Ovarian Cystoma? O. Brakemann.—p. 2376.
Lymphangiocystofibroma of Uterus. A. Muschik.—p. 2389.
Historical Reporting in Gynecology. J. Stur.—p. 2397.

Hyperemesis and Hypochloremia.—Kretzschmar points out that disorders accompanied by frequent attacks of vomiting often lead to hypochloremia and that enteral or parenteral administration of sodium chloride is often helpful in the treatment of these conditions. He reports a case in which a woman who developed hyperemesis gravidarum lost weight rapidly and developed icterus and fever; her pulse rate increased and periods of apathy alternated with periods of excitation. Treatment with insulin and dextrose was ineffective and the discovery of hypochloremia induced the author to administer sodium chloride. From 2 to 3 per cent of sodium chloride was added to the 10 per cent solution of dextrose administered by rectum and a 20 per cent solution of sodium chloride was given intravenously. This treatment was soon followed by considerable improvement and interruption of pregnancy was avoided.

Agranulocytosis-Like Disorder During Puerperium.—Heim calls attention to malignant ulcerations of the neck of the uterus which are not of venereal or tuberculous origin. Hematologic studies reveal a connection with severe functional disturbances of the hematopoietic system. After reviewing several cases from the literature, the author reports a case that he observed. It is particularly noteworthy because the woman was in the puerperal stage. Following delivery there was an elevation of temperature. Four days later the patient had difficulty in swallowing. The throat was red and the tonsils were enlarged but not coated. In the left posterior portion of the edematous vagina a discolored, painful ulceration was detected. Nosebleed and chills set in. Several days later an aphthous stomatitis had developed on the pharyngeal ring. The tongue was sore and a vesicular eruption appeared along its edge. The gums were swollen and presented ulcerations and partial necroses. A pemphigus-like exanthem appeared on the skin. Examination of the blood disclosed 1,290,000 erythrocytes, 25 per cent of hemoglobin, a color index of 1, 2,400 leukocytes and the absence of blood platelets. The granulocytes and monocytes showed signs of degeneration. A blood transfusion was given and the condition of the blood improved slightly, but a few days later she died. The author points out that a true agranulocytosis did not exist in this case, because both white and red blood pictures were greatly impaired. In hematology these forms have been referred to as symptomatic agranulocytosis, hemorrhagic aleukemia or panmyelophthisis. The latter can be excluded in the reported case, since it could be demonstrated that the hematopoietic function of the bone marrow was largely preserved. The author thinks that an anemia already existed during pregnancy, although the anamnesis did not reveal it. He considers the prognosis of cases of this type unfavorable.

Myoma Praevium and Placenta Praevia.—Ottow relates the history of a woman, aged 37, who was brought to the clinic on account of hemorrhages in the late stage of pregnancy. On examination it appeared that the pregnancy was at term with transverse presentation and placenta praevia. After a few days of rest in bed the hemorrhages ceased and the woman left the clinic but was readmitted two weeks later when the hemorrhages recurred and slight labor pains set in. On the basis of the diagnosis and because the woman desired a living child at all costs, cesarean section was resorted to and a living child was delivered. A myoma, the size of a child's head, was found on the anterior uterine wall in the region of the isthmus. The myoma was partly loosened from its bed and the placenta was attached to the capsule of the myoma. One part of the placenta reached into the region, which on account of the interposition of the myoma appeared to be the internal orifice of the uterus. The author shows why a conservative procedure, that is, enucleation of the myoma, was not advisable in this case. A supravaginal amputation was performed, but the right ovary was preserved. Two weeks later, the woman and child were discharged from the hospital. The author describes the probable development of the myoma and the insertion of the placenta on it. He is unable to state definitely whether the hemorrhages were caused by the placenta praevia, by the myoma or by both. He explains when enucleation of the myoma is advisable and when total extirpation of the uterus is preferable.

Norsk Magasin for Lægevidenskapen, Oslo

94: 1081-1192 (Oct.) 1933

*Malignant Tumors in Long Bones: Review of Material in Rikshospital's Surgical Division B from 1913 to 1928. F. Roscher.—p. 1081.
Pernicious Anemia with Funicular Myelosis as First and Only Grave Symptom: Case. T. Ostrem.—p. 1121.
Investigations on Friedman's Pregnancy Reaction. T. Leegaard and R. Ringdal.—p. 1125.
*Spontaneous Pneumothorax in Apparently Well Persons. T. H. Larsen.—p. 1130.
*Significance of Secondary Infection as Cause of General Infection in Acute and Chronic Gonorrhea. E. Bruusgaard and N. Danbolt.—p. 1143.

Malignant Tumors in Long Bones.—Of the seventeen cases of primary sarcoma treated by Roscher, seven were localized in the humerus. In one of these interscapulothoracic exarticulation was done, in six resection with transplantation of fibula. In one case with extensive periosteal sarcoma in which resection was done, followed by roentgen after-treatment, the patient was able to work for thirteen years after the operation. The author concludes that resection is contraindicated when examination or operation reveals infiltration of the soft parts in which case interscapulothoracic exarticulation should be performed immediately. Roentgen after-treatment should follow every resection. There were eight cases of primary sarcoma of the femur; out of seven in which amputation was done, five have been free from recurrence for from five to nineteen years. There were also one case of primary sarcoma of the tibia and one of the fibula; the former was considered inoperable because of glandular metastases, and in the latter Gritti's amputation was followed by fatal metastases. The author states that radical amputation or exarticulation, at all events in primary sarcoma of the femur, saves life in a number of cases, while the results of resection are rarely good. Patients preferred resection to amputation or exarticulation, but the greater risk of resection must be more clearly stressed. The material encourages active treatment of bone sarcoma at the earliest possible stage of the disease. There were five cases of metastatic bone tumors; in such cases operative treatment may occasionally be palliative.

Spontaneous Pneumothorax in Apparently Well Persons.—Of Larsen's seven patients, three recovered in a short time, the fourth in six months, and the fifth after more than a year; in the sixth the pneumothorax persists after two years and in the seventh there is a partial pneumothorax in the apical region after one and one-fourth years. The fourth and fifth patients were brothers. In the fifth, formation of exudate occurred after a year and led to resorption of air; there was no fever and the Pirquet reaction was negative. Aspiration of air was tried in two cases, without effect.

Secondary Infection as Cause of General Infection in Acute and Chronic Gonorrhea.—In Bruusgaard and Danbolt's three cases of chronic gonorrhea with prostatitis a secondary pyemic infection leading to general infection dominated the picture. In two cases, yellow hemolytic staphylococci were demonstrated by blood cultures; in the third, hemolytic streptococci. The first case was fatal after a week from almost fulminating pyemia; in the second, amputation of the femur was indicated because of alarming arterial hemorrhages; the third patient recovered after a subfebrile period of several months. The cases are seen to illustrate the gravity of gonorrhea not only because of the grave complications due to the gonorrhea but because of the secondary infections and mixed infections which accompany it or for which it paves the way.